1
00:00:01,360 --> 00:00:03,910
Good day from International
Space Station flight control

2
00:00:03,910 --> 00:00:06,210
room at the Johnson
space center in Houston

3
00:00:06,210 --> 00:00:09,630
as another week begins
for the orbital laboratory

4
00:00:09,630 --> 00:00:12,290
for the expedition 33 crew.

5
00:00:12,290 --> 00:00:15,150
Here in the ISS flight
control room the orbit two team

6
00:00:15,150 --> 00:00:16,870
of flight controllers is on duty

7
00:00:16,870 --> 00:00:20,540
at this hour having taken
a handover earlier today

8
00:00:20,540 --> 00:00:24,150
from the orbit one team that
presided over the first half

9
00:00:24,150 --> 00:00:25,650
of the crew workday that began

10
00:00:25,650 --> 00:00:29,130
with a wake-up call
at 1 AM central time.

11
00:00:29,130 --> 00:00:32,250
On console at this hour

tending to business,

12
00:00:32,250 --> 00:00:34,770
along with other
flight control teams

13
00:00:34,770 --> 00:00:38,100
around the world are the
orbit two flight director

14
00:00:38,100 --> 00:00:39,390
on the right side
of your screen.

15
00:00:39,390 --> 00:00:41,410
Mike Lammers, joined on console

16
00:00:41,410 --> 00:00:45,300
by spacecraft communicator Mark
Reagan who is talking directly

17
00:00:45,300 --> 00:00:48,840
to the crew on board the
International Space Station.

18
00:00:48,840 --> 00:00:53,420
That expedition 33 crew, led by
station commander Suni Williams

19
00:00:53,420 --> 00:00:55,540
on the left of your screen along

20
00:00:55,540 --> 00:00:58,180
with Russian cosmonaut Yuri
Malenchenko in the middle

21
00:00:58,180 --> 00:01:00,710
and Aki Hoshide a
flight engineer

22
00:01:00,710 --> 00:01:04,320
from the Japan aerospace
exploration agency are

23
00:01:04,320 --> 00:01:08,620
in their 78th day in space
their 76th day aboard the

24
00:01:08,620 --> 00:01:10,910
International Space Station.

25
00:01:10,910 --> 00:01:13,260
A few moments ago Suni
Williams a reported

26
00:01:13,260 --> 00:01:16,370
that the flight control
team here on the ground

27
00:01:16,370 --> 00:01:20,850
that the crew is gliding through
what she called a manic Monday

28
00:01:20,850 --> 00:01:24,260
where they're working a couple
of in-flight maintenance issues,

29
00:01:24,260 --> 00:01:26,790
nothing of any tremendous
significance,

30
00:01:26,790 --> 00:01:32,780
but those issues include the
replacement earlier today

31
00:01:32,780 --> 00:01:36,650
of a pretreat tank in the
waste and hygiene compartment

32

00:01:36,650 --> 00:01:38,780
that is located in
the destiny laboratory

33
00:01:38,780 --> 00:01:40,830
of the International
Space Station.

34
00:01:40,830 --> 00:01:43,320
You're looking at
video that was acquired

35
00:01:43,320 --> 00:01:46,720
about 3 AM central
time on Monday.

36
00:01:46,720 --> 00:01:48,040
Suni Williams working

37
00:01:48,040 --> 00:01:52,360
to reinstall a brand-new
pretreat tank that is essential

38
00:01:52,360 --> 00:01:55,430
for the operation of the
waste and hygiene compartment

39
00:01:55,430 --> 00:01:57,530
in the destiny laboratory.

40
00:01:57,530 --> 00:02:01,170
The R&R of that tank, which
is conducted periodically,

41
00:02:01,170 --> 00:02:04,040
was of no consequence
but the problem occurred

42
00:02:04,040 --> 00:02:06,520
with the attempt to

reactivate the system,

43
00:02:06,520 --> 00:02:09,710
which yielded no joy.

44
00:02:09,710 --> 00:02:12,000
Specialists are off
scratching their heads

45
00:02:12,000 --> 00:02:15,150
and developing troubleshooting
plans as they pore

46
00:02:15,150 --> 00:02:17,350
through the data from the waste

47
00:02:17,350 --> 00:02:20,630
and hygiene compartment
before offering any further

48
00:02:20,630 --> 00:02:23,480
recommendations to the space
station crew onboard the

49
00:02:23,480 --> 00:02:26,180
International Space
Station for another attempt

50
00:02:26,180 --> 00:02:29,610
to reactivate the waste
and hygiene compartment.

51
00:02:29,610 --> 00:02:32,310
One of the options may be
to change out that tank.

52
00:02:32,310 --> 00:02:36,960
Its' possible that a bad set of
pretreat liquids may be existing

53
00:02:36,960 --> 00:02:40,920
in that tank that was replaced
by Williams earlier today.

54
00:02:40,920 --> 00:02:44,550
We'll be waiting for further
words on the disposition

55
00:02:44,550 --> 00:02:47,990
of the reactivation of the
waste and hygiene compartment.

56
00:02:47,990 --> 00:02:52,410
One of the other issues
that Williams faced

57
00:02:52,410 --> 00:02:55,630
in the early morning hours
was the reloading of software

58
00:02:55,630 --> 00:02:58,880
on express rack two in
the destiny laboratory.

59
00:02:58,880 --> 00:03:02,490
You're looking here at
video of a laptop computer

60
00:03:02,490 --> 00:03:06,170
that she attempted to reload
software on for the governing

61
00:03:06,170 --> 00:03:10,820
of experiment data coming
down from that express rack.

62
00:03:10,820 --> 00:03:14,680
The activity that took about an
hour this morning yielded no joy

63
00:03:14,680 --> 00:03:16,720
either user in the loading

64
00:03:16,720 --> 00:03:19,470
of that new software
for express rack two.

65
00:03:19,470 --> 00:03:22,700
And as a result the
payload operations Center

66
00:03:22,700 --> 00:03:24,840
at Marshall space flight
Center in Huntsville,

67
00:03:24,840 --> 00:03:27,380
Alabama that is responsible

68
00:03:27,380 --> 00:03:31,210
for payload operations aboard
the orbital laboratory is off

69
00:03:31,210 --> 00:03:35,260
considering what other
options may be necessary

70
00:03:35,260 --> 00:03:38,170
and any troubleshooting
activities that may be on work

71
00:03:38,170 --> 00:03:42,750
to try to successfully load new
software on express rack two.

72
00:03:42,750 --> 00:03:45,530
The old load of software
is operating just fine,

73
00:03:45,530 --> 00:03:48,960

no impact to science at
this point as Suni Williams

74
00:03:48,960 --> 00:03:49,940
and the payload team

75
00:03:49,940 --> 00:03:53,770
at the Marshall Space Flight
Center are off discussing any

76
00:03:53,770 --> 00:03:56,370
options for the next attempt

77
00:03:56,370 --> 00:04:00,210
to reload new software
on express rack two.

78
00:04:00,210 --> 00:04:02,920
One of the items on
tap for this first day

79
00:04:02,920 --> 00:04:06,690
of October is the start of
a busy week of activities

80
00:04:06,690 --> 00:04:10,620
in preparation for the scheduled
launch on Sunday evening

81
00:04:10,620 --> 00:04:15,020
of the SpaceX Dragon vehicle
from launch complex 40

82
00:04:15,020 --> 00:04:18,250
at the Cape Canaveral Air
Force Station in Florida,

83
00:04:18,250 --> 00:04:20,570
the second flight of
the Dragon spacecraft

84
00:04:20,570 --> 00:04:22,760
to the International
Space Station

85
00:04:22,760 --> 00:04:25,420
and the first commercial
resupply mission

86
00:04:25,420 --> 00:04:28,480
to the International Space
Station carrying a significant

87
00:04:28,480 --> 00:04:32,750
amount, about a thousand pounds,
of experiments and supplies

88
00:04:32,750 --> 00:04:36,380
for the residents of the
International Space Station.

89
00:04:36,380 --> 00:04:39,810
Over the weekend
of the SpaceX team

90
00:04:39,810 --> 00:04:43,610
down at the cape successfully
conducted a hot fire test

91
00:04:43,610 --> 00:04:46,640
of the falcon nine launch
vehicle's first stage

92
00:04:46,640 --> 00:04:48,100
Merlin engines.

93
00:04:48,100 --> 00:04:51,160
They are poring over the
data throughout the course

94
00:04:51,160 --> 00:04:52,070
of the day.

95
00:04:52,070 --> 00:04:56,110
Everything appears to have gone
well with that hot fire test.

96
00:04:56,110 --> 00:04:58,150
Other internal reviews
are worried under way

97
00:04:58,150 --> 00:05:00,820
by the SpaceX technicians
and engineers

98
00:05:00,820 --> 00:05:06,300
down at launch complex 40, and a
further review and a final poll

99
00:05:06,300 --> 00:05:09,650
for a "go/no go" for
Sunday's launch will be taken

100
00:05:09,650 --> 00:05:12,730
to the International Space
Station mission management team

101
00:05:12,730 --> 00:05:14,780
this coming Thursday.

102
00:05:14,780 --> 00:05:18,420
If all goes as planned the
falcon nine will lift off

103
00:05:18,420 --> 00:05:21,040
from the Cape Canaveral
Air Force station

104
00:05:21,040 --> 00:05:27,470

at 7:35 PM central time 8:35 PM
Eastern time on Sunday night.

105
00:05:27,470 --> 00:05:30,280
That will set up a rendezvous
that will take just a bit

106
00:05:30,280 --> 00:05:36,150
over two days, enabling the
Dragon to reach the vicinity

107
00:05:36,150 --> 00:05:38,150
of the International Space
Station on Wednesday,

108
00:05:38,150 --> 00:05:44,000
October 10 for a grapple by the
station's robotic arm Canadarm2

109
00:05:44,000 --> 00:05:48,390
that will be operated by Aki
Hoshide and Suni Williams

110
00:05:48,390 --> 00:05:50,880
from the cupola robotic
workstation

111
00:05:50,880 --> 00:05:54,380
in the International Space
Station, as was the case back

112
00:05:54,380 --> 00:05:56,090
in May for the maiden
flight of Dragon

113
00:05:56,090 --> 00:05:57,620
to the International
Space Station

114
00:05:57,620 --> 00:06:01,770

on a demonstration flight that
also carried a small amount

115
00:06:01,770 --> 00:06:03,480
of cargo to the complex.

116
00:06:03,480 --> 00:06:07,710
This time they will reach out,
grapple the Dragon and berth it

117
00:06:07,710 --> 00:06:10,840
to the Earth facing port
on the harmony module

118
00:06:10,840 --> 00:06:13,170
of the International
Space Station for just

119
00:06:13,170 --> 00:06:16,730
under three weeks of berth
operations to unload that cargo

120
00:06:16,730 --> 00:06:19,660
and load supplies and
experiments back into Dragon

121
00:06:19,660 --> 00:06:22,590
for its return to Earth and
a splashdown off the coast

122
00:06:22,590 --> 00:06:26,940
of Southern California that
is scheduled for October 28.

123
00:06:26,940 --> 00:06:30,510
Live coverage on
Sunday night originating

124
00:06:30,510 --> 00:06:33,830
from the Kennedy space Center in

Cape Canaveral Air Force station

125
00:06:33,830 --> 00:06:36,030
of the SpaceX Dragon launched

126
00:06:36,030 --> 00:06:38,870
on the first commercial
resupply mission is scheduled

127
00:06:38,870 --> 00:06:41,850
for 6 PM central time
7 PM Eastern time.

128
00:06:41,850 --> 00:06:46,020
Again the launch scheduled on
an instantaneous launch window

129
00:06:46,020 --> 00:06:50,750
at 7:35 PM central time
8:35 PM Eastern time

130
00:06:50,750 --> 00:06:53,600
on Sunday night October 7.

131
00:06:53,600 --> 00:06:58,940
To that end Williams and Hoshide
will be using a laptop computer

132
00:06:58,940 --> 00:07:03,520
in the destiny laboratory's
robotic workstation today

133
00:07:03,520 --> 00:07:09,740
in order to conduct a robotic
training exercise using a

134
00:07:09,740 --> 00:07:14,720
pre-loaded program to
simulate the arrival of Dragon

135
00:07:14,720 --> 00:07:18,200
and their simulated
grapple and berthing

136
00:07:18,200 --> 00:07:21,400
of the Dragon spacecraft
to the nadir port

137
00:07:21,400 --> 00:07:24,380
of the Earth facing
port of harmony.

138
00:07:24,380 --> 00:07:27,320
The issue with that
robotics workstation

139
00:07:27,320 --> 00:07:31,720
in the destiny laboratory
that also continues to be

140
00:07:31,720 --> 00:07:35,150
under technical discussion
was the unsuccessful attempt

141
00:07:35,150 --> 00:07:39,860
on Friday to replace a
remote power control module,

142
00:07:39,860 --> 00:07:44,340
an RPCM if you will, that
that is used for the routing

143
00:07:44,340 --> 00:07:47,400
of electrical power to
that robotics workstation.

144
00:07:47,400 --> 00:07:51,370
An attempt to replace
the current RPCM

145
00:07:51,370 --> 00:07:53,580
with a spare was not successful.

146
00:07:53,580 --> 00:07:55,350
A second spare was
also attempted

147
00:07:55,350 --> 00:07:56,880
to be installed by
Suni Williams.

148
00:07:56,880 --> 00:08:02,270
It too was not successful in
a power up of that new RPCM

149
00:08:02,270 --> 00:08:07,040
and so the old remote power
control module was reinstalled

150
00:08:07,040 --> 00:08:10,110
in the destiny laboratory.

151
00:08:10,110 --> 00:08:13,690
It is up and running,
establishing communications

152
00:08:13,690 --> 00:08:17,780
but there is no indication
of a power flow to the unit.

153
00:08:17,780 --> 00:08:21,560
As a result to ensure the
redundant power supply goes

154
00:08:21,560 --> 00:08:25,540
to that robotics workstation,
the crew will be installing

155
00:08:25,540 --> 00:08:27,950

on Tuesday a jumper
cable to make sure

156
00:08:27,950 --> 00:08:30,250
that the lab robotics
workstation,

157
00:08:30,250 --> 00:08:33,410
one of two that exist in the
International Space Station,

158
00:08:33,410 --> 00:08:36,730
has a redundant power capability
and is available to the crew

159
00:08:36,730 --> 00:08:41,400
as a hot back up to their cupola
workstation robotics workstation

160
00:08:41,400 --> 00:08:44,500
that they they will be
operating out of on October 10

161
00:08:44,500 --> 00:08:49,030
for the grapple and berthing
of the Dragon spacecraft.

162
00:08:49,030 --> 00:08:52,490
Amidst all of this scientific
experiments continue onboard the

163
00:08:52,490 --> 00:08:54,010
International Space Station.

164
00:08:54,010 --> 00:08:56,570
One of the experiments in
work today is called the

165
00:08:56,570 --> 00:08:58,320
In Space experiment.

166
00:08:58,320 --> 00:09:02,300
Principal investigators for
that are Dr. Alice Gast of MIT

167
00:09:02,300 --> 00:09:05,940
and Dr. Eric Furst of the
University of Delaware.

168
00:09:05,940 --> 00:09:09,610
The In Space experiment,
that's a fancy acronym

169
00:09:09,610 --> 00:09:12,670
for Investigating The Structure
Of Paramagnetic Aggregates

170
00:09:12,670 --> 00:09:14,740
From Colloidal Emulsions.

171
00:09:14,740 --> 00:09:18,120
Basically studies the behavior
of magnetic colloidal fluids

172
00:09:18,120 --> 00:09:21,060
under the influence of
various magnetic fields.

173
00:09:21,060 --> 00:09:25,090
The technology and data gleaned
from this experiment is designed

174
00:09:25,090 --> 00:09:28,040
to improve the ability to design
structures, such as bridges

175
00:09:28,040 --> 00:09:31,700
and buildings and to better
withstand earthquake damage

176
00:09:31,700 --> 00:09:36,200
to structures by
formulating better structures

177
00:09:36,200 --> 00:09:37,710
and better materials with which

178
00:09:37,710 --> 00:09:40,130
to build buildings
back on Earth.

179
00:09:40,130 --> 00:09:42,380
While all this is going
on, another spacecraft

180
00:09:42,380 --> 00:09:43,850
that continues to
orbit the Earth.

181
00:09:43,850 --> 00:09:47,450
That being the Edoardo Amaldi
automated transfer vehicle

182
00:09:47,450 --> 00:09:50,190
that undocked from the
International Space Station

183
00:09:50,190 --> 00:09:53,480
from the aft port of the
Zvezda service module back

184
00:09:53,480 --> 00:09:57,430
on Friday afternoon at
4:44 PM central time

185
00:09:57,430 --> 00:10:01,210
over Western Kazakhstan ending
a six-month stay onboard the

186

00:10:01,210 --> 00:10:02,830
International Space Station.

187
00:10:02,830 --> 00:10:06,350
The belated undocking of Edoardo
Amaldi occurred three days

188
00:10:06,350 --> 00:10:09,520
behind schedule because
of a communications glitch

189
00:10:09,520 --> 00:10:12,740
between the service
module software

190
00:10:12,740 --> 00:10:15,020
and the automated
transfer vehicle.

191
00:10:15,020 --> 00:10:17,940
That was solved by Russian
flight controllers permitting

192
00:10:17,940 --> 00:10:20,640
the undocking to
occur back on Friday.

193
00:10:20,640 --> 00:10:24,260
Edoardo Amaldi has continued
to move away to phase away

194
00:10:24,260 --> 00:10:27,200
from International Space
Station to a safe distance

195
00:10:27,200 --> 00:10:30,850
for what is expected to be
a pair of deorbit burns,

196
00:10:30,850 --> 00:10:34,460

engine firings if you will,
retrograde engine firings

197
00:10:34,460 --> 00:10:37,220
on Tuesday afternoon
and Tuesday evening

198
00:10:37,220 --> 00:10:40,220
that will send Edoardo
Amaldi into a reentry

199
00:10:40,220 --> 00:10:43,510
into the Earth's atmosphere
where it will burn up harmlessly

200
00:10:43,510 --> 00:10:45,210
over the Pacific Ocean.

201
00:10:45,210 --> 00:10:49,750
This animation shows essentially
the reentry of Edoardo Amaldi

202
00:10:49,750 --> 00:10:53,020
and its breakup over
the Pacific Ocean.

203
00:10:53,020 --> 00:10:56,110
A special recording device
will measure the data

204
00:10:56,110 --> 00:11:00,250
from that breakup and send
back information to engineers

205
00:11:00,250 --> 00:11:03,650
and scientists on the ground
who are developing spacecraft

206
00:11:03,650 --> 00:11:06,030
of the future so they better

understand the breakup

207
00:11:06,030 --> 00:11:09,120
characteristics of
a space vehicle

208
00:11:09,120 --> 00:11:12,210
that is reentering the
Earth's atmosphere.

209
00:11:12,210 --> 00:11:13,720
And so that's a look ahead

210
00:11:13,720 --> 00:11:16,380
at what's happening aboard the
International Space Station

211
00:11:16,380 --> 00:11:19,430
and a look at some of the
activities that lie ahead