1
00:00:48,709 --> 00:00:46,310
good evening

2
00:00:50,470 --> 00:00:48,719
tonight nasa embarks on the second space

3
00:00:53,189 --> 00:00:50,480
shuttle flight to service the hubble

4
00:00:55,270 --> 00:00:53,199
space telescope this 10-day mission

5
00:00:57,110 --> 00:00:55,280
features at least four space walks by

6
00:00:59,750 --> 00:00:57,120
four crew members to replace worn-out

7
00:01:01,590 --> 00:00:59,760
hardware or to upgrade the capabilities

8
00:01:03,349 --> 00:01:01,600
of the telescope

9
00:01:06,870 --> 00:01:03,359
and so we begin our live coverage on

10
00:01:08,789 --> 00:01:06,880
nasa television of mission sts 82 here

11
00:01:10,950 --> 00:01:08,799
at the john f kennedy space center in

12
00:01:13,590 --> 00:01:10,960
florida

13
00:01:15,670 --> 00:01:13,600

all countdown events are on schedule and

14
00:01:17,990 --> 00:01:15,680
the launch team is on station here in

15
00:01:50,789 --> 00:01:18,000
firing room 3 in the launch control

16
00:01:54,550 --> 00:01:52,870
and we have the crew

17
00:01:57,670 --> 00:01:54,560
seated from the left we have payload

18
00:02:00,950 --> 00:01:59,429
you'll be performing two of the space

19
00:02:02,310 --> 00:02:00,960
walks on this mission

20
00:02:04,389 --> 00:02:02,320
and we have

21
00:02:06,550 --> 00:02:04,399
mission specialist stephen hawley flight

22
00:02:08,790 --> 00:02:06,560
engineer for this flight

23
00:02:11,029 --> 00:02:08,800
pilot scott horowitz

24
00:02:15,030 --> 00:02:11,039
flying for the second time

25
00:02:17,589 --> 00:02:15,040
and commander ken bowersox

26
00:02:21,589 --> 00:02:17,599
crews ready to go this morning

27
00:02:26,390 --> 00:02:23,830
steve smith and greg harbaugh

28
00:02:28,790 --> 00:02:26,400
very experienced crew well-trained crew

29
00:02:31,030 --> 00:02:28,800
been in training for two years now for

30
00:02:49,030 --> 00:02:31,040
this flight they're ready to go and

31
00:02:53,750 --> 00:02:51,270
we have commander ken bowersox

32
00:02:55,750 --> 00:02:53,760
this is his fourth flight

33
00:02:57,270 --> 00:02:55,760
he has been an astronaut for about 10

34
00:02:58,790 --> 00:02:57,280
years

35
00:03:00,949 --> 00:02:58,800
and bowersox will have overall

36
00:03:02,949 --> 00:03:00,959
responsibility for commanding the flight

37
00:03:09,350 --> 00:03:02,959
he was the pilot for the first hubble

38
00:03:13,910 --> 00:03:11,910

and we have pilot horowitz

39
00:03:15,750 --> 00:03:13,920
as pilot he will assist bowersox at the

40
00:03:17,270 --> 00:03:15,760
flight controls this is his second

41
00:03:18,869 --> 00:03:17,280
flight

42
00:03:20,470 --> 00:03:18,879
he will assist powersocks during the

43
00:03:25,670 --> 00:03:20,480
rendezvous and retrieval of the hubble

44
00:03:31,589 --> 00:03:29,350
and we have mission specialist mark lee

45
00:03:33,430 --> 00:03:31,599
taking a brief rest mission specialist

46
00:03:36,070 --> 00:03:33,440
joe tanner

47
00:03:37,670 --> 00:03:36,080
tanner's making his second flight

48
00:03:39,750 --> 00:03:37,680
he will be this will be his first

49
00:03:41,509 --> 00:03:39,760
spacewalk he'll be teaming up with greg

50
00:03:42,710 --> 00:03:41,519
harbaugh and replacing one of the three

51
00:03:44,309 --> 00:03:42,720
fine guidance

52
00:03:47,750 --> 00:03:44,319
sensors on hubble

53
00:03:49,589 --> 00:03:47,760
during the second eva

54
00:03:52,470 --> 00:03:49,599
and we've got uh mission specialist

55
00:03:57,990 --> 00:03:55,750
holly's making his uh

56
00:03:59,509 --> 00:03:58,000
fourth flight today

57
00:04:01,589 --> 00:03:59,519
he's serving as the flight engineer and

58
00:04:04,789 --> 00:04:01,599
will assist the commander and pilot with

59
00:04:07,110 --> 00:04:04,799
ascent and re-entry checklist

60
00:04:08,550 --> 00:04:07,120
and we have a mission specialist greg

61
00:04:10,869 --> 00:04:08,560
harbaugh

62
00:04:12,949 --> 00:04:10,879
he's making his fourth flight he will be

63
00:04:15,270 --> 00:04:12,959

teamed up with joe tanner to perform two

64
00:04:17,670 --> 00:04:15,280
of the space walks harbaugh performed a

65
00:04:19,509 --> 00:04:17,680
spacewalk on sts-54

66
00:04:21,990 --> 00:04:19,519
and we have mission specialist five

67
00:04:23,830 --> 00:04:22,000
steve smith making his second flight

68
00:04:25,830 --> 00:04:23,840
he'll be a first time spacewalker on

69
00:04:28,550 --> 00:04:25,840
this flight he'll be teamed up with

70
00:04:29,990 --> 00:04:28,560
barclay in replacing the two instruments

71
00:04:49,670 --> 00:04:30,000
that have a combined weight of about

72
00:04:56,790 --> 00:04:51,990
crews saying goodbye to members of the

73
00:04:56,800 --> 00:05:11,510
uh

74
00:05:11,520 --> 00:05:24,870
oh my gosh

75
00:05:30,710 --> 00:05:26,710
this is shuttle launch control at t

76
00:05:31,749 --> 00:05:30,720
minus 2 hours 46 minutes and counting

77
00:05:34,230 --> 00:05:31,759
we've got

78
00:08:25,110 --> 00:05:34,240
some views now of the flight crew now at

79
00:08:28,790 --> 00:08:27,270
conversation on oas channel 212 during

80
00:08:29,589 --> 00:08:28,800
the astacam checks will be heard by the

81
00:08:31,270 --> 00:08:29,599
crew

82
00:08:33,190 --> 00:08:31,280
channel should remain silent except for

83
00:08:34,949 --> 00:08:33,200
emergency calls

84
00:08:37,670 --> 00:08:34,959
and for the flight crew during our after

85
00:08:39,350 --> 00:08:37,680
context adjust your appropriate volumes

86
00:08:43,350 --> 00:08:39,360
for comfort and then don't change the

87
00:08:47,750 --> 00:08:45,430
mission management team

88
00:08:49,190 --> 00:08:47,760

uh jim the mmt is working no issues

89
00:08:51,590 --> 00:08:49,200
you're clear to launch

90
00:08:54,790 --> 00:08:51,600
copy that

91
00:08:56,389 --> 00:08:54,800
and discovery

92
00:08:57,990 --> 00:08:56,399
can you and their team have a great

93
00:09:00,630 --> 00:08:58,000
mission and uh

94
00:09:05,190 --> 00:09:00,640
do some good hubble upgrades we'll see

95
00:09:08,470 --> 00:09:07,030
all right jim thanks for the good wishes

96
00:09:10,150 --> 00:09:08,480
we sure appreciate all the hard work

97
00:09:12,070 --> 00:09:10,160
that went into getting discovery and our

98
00:09:13,990 --> 00:09:12,080
payload ready for launch

99
00:09:15,670 --> 00:09:14,000
i think uh with a little luck

100
00:09:17,110 --> 00:09:15,680
in a couple of weeks the best telescope

101
00:09:19,670 --> 00:09:17,120
in the universe will be even better than

102
00:09:19,680 --> 00:09:26,470
nnpd you're clearly alone copy thank you

103
00:09:47,190 --> 00:09:28,150
all personnel watch countdown clock will

104
00:09:51,910 --> 00:09:49,030
and a profile test of the orbiter's

105
00:09:53,590 --> 00:09:51,920
aerosurfaces has started

106
00:09:55,750 --> 00:09:53,600
these are being moved through a

107
00:09:57,269 --> 00:09:55,760
pre-programmed

108
00:10:08,949 --> 00:09:57,279
pattern to verify that they are ready

109
00:10:14,310 --> 00:10:10,949
t-minus three minutes 30 seconds and

110
00:10:29,910 --> 00:10:16,470
the three main engines are being gambled

111
00:10:29,920 --> 00:10:37,670
and the gaseous oxygen vent hood

112
00:10:41,509 --> 00:10:39,670
the gaseous oxygen vent hood at the top

113
00:10:46,230 --> 00:10:41,519

of the tank is being retracted away at

114
00:10:58,949 --> 00:10:48,230
and we wish you're all a fantastic voice

115
00:10:58,959 --> 00:11:03,590
t-minus 25 seconds

116
00:11:03,600 --> 00:11:08,470
20.

117
00:11:24,870 --> 00:11:11,030
t-minus 15 seconds and counting all

118
00:11:29,910 --> 00:11:27,590
ignition and liftoff discovery now on

119
00:11:31,590 --> 00:11:29,920
its way to service nasa's hubble space

120
00:11:35,350 --> 00:11:31,600
telescope

121
00:11:41,110 --> 00:11:37,190
we're all programming

122
00:11:44,310 --> 00:11:42,710
role maneuver is complete aboard

123
00:11:46,470 --> 00:11:44,320
discovery the vehicle is now in a heads

124
00:11:52,470 --> 00:11:46,480
down position on course for a 28 and a

125
00:11:56,470 --> 00:11:54,069
discovery already

126
00:11:58,470 --> 00:11:56,480
one and a half miles in altitude and

127
00:12:08,870 --> 00:11:58,480
downrange from the launch site one and a

128
00:12:13,030 --> 00:12:10,870
three main engines beginning to throttle

129
00:12:14,790 --> 00:12:13,040
down now as the orbiter prepares to pass

130
00:12:16,389 --> 00:12:14,800
through the area of maximum dynamic

131
00:12:18,150 --> 00:12:16,399
pressure on the vehicle in the lower

132
00:12:20,710 --> 00:12:18,160
atmosphere

133
00:12:27,910 --> 00:12:20,720
the three engines now at 67 percent of

134
00:12:40,069 --> 00:12:29,590
the engine is now beginning to throttle

135
00:12:40,079 --> 00:12:46,629
discovery go at throttle up

136
00:12:50,389 --> 00:12:48,389
the three liquid fueled engines are now

137
00:12:52,470 --> 00:12:50,399
back at full throttle

138
00:12:54,230 --> 00:12:52,480

discovery's altitude is 13 miles

139
00:12:56,870 --> 00:12:54,240
downrange from the launch site 10 and a

140
00:13:00,230 --> 00:12:56,880
half miles

141
00:13:01,670 --> 00:13:00,240
now traveling 1800 miles per hour

142
00:13:03,829 --> 00:13:01,680
the three good

143
00:13:05,430 --> 00:13:03,839
electrical systems are fuel cells and

144
00:13:18,069 --> 00:13:05,440
hydraulic systems providing the

145
00:13:22,389 --> 00:13:20,470
solid rocket boosters beginning to tail

146
00:13:25,509 --> 00:13:22,399
off with their chamber pressure standing

147
00:13:37,509 --> 00:13:25,519
by for burnout and separation of the

148
00:13:42,790 --> 00:13:40,790
srb separation is confirmed two minutes

149
00:13:44,550 --> 00:13:42,800
20 seconds into the flight

150
00:13:46,949 --> 00:13:44,560
discovery is now downrange from the

151
00:13:50,790 --> 00:13:46,959
launch site of 40 miles at an altitude

152
00:14:02,069 --> 00:13:52,790
performance

153
00:14:05,590 --> 00:14:04,150
three good hydraulic systems and fuel

154
00:14:08,389 --> 00:14:05,600
cells and the main engines are still

155
00:14:20,949 --> 00:14:08,399
performing as expected at 104 percent of

156
00:14:24,790 --> 00:14:22,870
commander ken bowersox and pilot scott

157
00:14:26,550 --> 00:14:24,800
horowitz watching over all of the

158
00:14:27,990 --> 00:14:26,560
orbiter systems from the forward portion

159
00:14:29,829 --> 00:14:28,000
of the flight deck

160
00:14:31,910 --> 00:14:29,839
directly behind them flight engineer

161
00:14:34,470 --> 00:14:31,920
steve hawley and mission specialist joe

162
00:14:36,870 --> 00:14:34,480
tanner while greg harbaugh markley and

163
00:14:44,069 --> 00:14:36,880

steve smith ride down on the mid deck of

164
00:14:47,430 --> 00:14:45,910
and houston discovery on the doors as

165
00:14:50,310 --> 00:14:47,440
you can see the port door is opening

166
00:14:52,870 --> 00:14:50,320
just fine on the first opening we went

167
00:14:54,949 --> 00:14:52,880
straight from uh

168
00:14:57,030 --> 00:14:54,959
closed to blank we didn't get the ready

169
00:15:00,949 --> 00:14:57,040
on the closing and the subsequent