

1  
00:00:13,300 --> 00:00:17,630  
because the James Webb Space Telescope

2  
00:00:15,169 --> 00:00:19,969  
will be searching for the heat coming

3  
00:00:17,629 --> 00:00:22,910  
from faraway objects in the universe the

4  
00:00:19,969 --> 00:00:24,799  
observatory needs to be kept cold the

5  
00:00:22,910 --> 00:00:27,289  
layers of its sun shield will separate

6  
00:00:24,800 --> 00:00:29,570  
from each other much like this span does

7  
00:00:27,289 --> 00:00:31,969  
in order to keep the Webb telescope from

8  
00:00:29,570 --> 00:00:34,009  
heating up to find out more about how

9  
00:00:31,969 --> 00:00:35,839  
this is all going to work we've come to

10  
00:00:34,009 --> 00:00:38,089  
north of bremen in Redondo Beach

11  
00:00:35,840 --> 00:00:39,440  
California Chad I see that a test is

12  
00:00:38,090 --> 00:00:39,920  
about to happen here what's what's going

13  
00:00:39,439 --> 00:00:41,869  
on

14  
00:00:39,920 --> 00:00:43,760  
yes we're about to deploy the second

15  
00:00:41,869 --> 00:00:45,408  
half of a Sun shield membrane assembly

16  
00:00:43,759 --> 00:00:49,820  
to see how the whole system works

17  
00:00:45,408 --> 00:00:52,399  
together we're trying to verify that the

18  
00:00:49,820 --> 00:00:55,219  
behaviors of the Sun shield pan out like

19  
00:00:52,399 --> 00:00:56,750  
we expect them to if there are problems

20  
00:00:55,219 --> 00:00:58,579  
with the deployment then we know how to

21  
00:00:56,750 --> 00:01:01,518  
fix the problems before we get into our

22  
00:00:58,579 --> 00:01:03,619  
flight production how representative is

23  
00:01:01,518 --> 00:01:05,750  
it of the flight Sun shield these are

24  
00:01:03,619 --> 00:01:07,908  
about 90 percent representative of the

25  
00:01:05,750 --> 00:01:10,430  
flight membrane articles they have

26  
00:01:07,909 --> 00:01:11,868  
similar coatings and for the most part

27  
00:01:10,430 --> 00:01:15,920  
the overall construction of the

28  
00:01:11,868 --> 00:01:16,489  
membranes are identical as we deploy the

29

00:01:15,920 --> 00:01:18,859  
Sun shield

30  
00:01:16,489 --> 00:01:21,438  
it.one folds in a controlled organized

31  
00:01:18,858 --> 00:01:23,478  
manner and that's allowing us to keep

32  
00:01:21,438 --> 00:01:27,978  
the membrane assembly or the Sun shield

33  
00:01:23,478 --> 00:01:29,868  
safe during deployment after the

34  
00:01:27,978 --> 00:01:31,700  
membranes deploy all the way out we are

35  
00:01:29,868 --> 00:01:33,530  
then going to tension the membranes and

36  
00:01:31,700 --> 00:01:36,890  
that's going to actually cause the five

37  
00:01:33,530 --> 00:01:38,509  
layers of the memory to separate our

38  
00:01:36,890 --> 00:01:41,299  
main concern right now to test the

39  
00:01:38,509 --> 00:01:43,009  
membrane interaction with the subsystems

40  
00:01:41,299 --> 00:01:45,180  
of the Sun shield to make sure

41  
00:01:43,009 --> 00:01:47,459  
everything's functioning as intended

42  
00:01:45,180 --> 00:01:49,580  
so when this test is done will it look

43  
00:01:47,459 --> 00:01:51,899

like the pictures we've seen of web

44

00:01:49,579 --> 00:01:55,200

actually it won't look exactly like the

45

00:01:51,900 --> 00:01:57,450

images the overall shape and size of the

46

00:01:55,200 --> 00:01:59,400

memory should be close there are some

47

00:01:57,450 --> 00:02:01,590

differences that we won't be able to

48

00:01:59,400 --> 00:02:05,190

replicate because we are deploying in 1g

49

00:02:01,590 --> 00:02:07,049

of gravity on earth we won't be able to

50

00:02:05,189 --> 00:02:08,819

realize the real shape until we get up

51

00:02:07,049 --> 00:02:10,409

into space where it's zero-g or

52

00:02:08,819 --> 00:02:12,329

weightless environment

53

00:02:10,409 --> 00:02:14,219

well thanks Jed for showing us what you

54

00:02:12,330 --> 00:02:17,190

guys do to test out the Sun shield sure

55

00:02:14,219 --> 00:02:19,050

you're very welcome Eric the observatory

56

00:02:17,189 --> 00:02:21,840

needs to be protected from heat sources

57

00:02:19,050 --> 00:02:23,700

like our own Sun the Sun Tan Lotion is

58

00:02:21,840 --> 00:02:25,890

you and I use have a maximum sun

59

00:02:23,699 --> 00:02:29,099

protection factor of about a hundred or

60

00:02:25,889 --> 00:02:32,639

so the Webb telescope Sun shield has an

61

00:02:29,099 --> 00:02:34,500

estimated SPF of 1 million thanks for

62

00:02:32,639 --> 00:02:36,979

joining us for this edition of behind

63

00:02:34,500 --> 00:02:36,979

the Webb