



1
00:00:06,070 --> 00:00:03,669
hi my name is molly white and i'm a heat

2
00:00:07,990 --> 00:00:06,080
shield engineer for orion

3
00:00:10,549 --> 00:00:08,000
the orion spacecraft is designed to go

4
00:00:13,350 --> 00:00:10,559
further than humans ever have before and

5
00:00:15,589 --> 00:00:13,360
the further out you go the faster you

6
00:00:17,590 --> 00:00:15,599
come back and the faster you come back

7
00:00:19,429 --> 00:00:17,600
the hotter you get so orion needs a

8
00:00:22,150 --> 00:00:19,439
really really good heat shield to

9
00:00:23,509 --> 00:00:22,160
protect its crew from that really really

10
00:00:25,029 --> 00:00:23,519
hot air that's going to be around it

11
00:00:26,790 --> 00:00:25,039
when it comes back

12
00:00:27,990 --> 00:00:26,800
why orion needs a heat shield if we

13
00:00:30,790 --> 00:00:28,000

think about

14

00:00:32,790 --> 00:00:30,800

friction and i'm moving my hands past

15

00:00:35,110 --> 00:00:32,800

each other just moving them pretty

16

00:00:37,190 --> 00:00:35,120

slowly i can still feel heat build up

17

00:00:39,670 --> 00:00:37,200

between my hands it gets hotter well if

18

00:00:42,470 --> 00:00:39,680

we think about orion which is going 25

19

00:00:44,709 --> 00:00:42,480

to 30 times the speed of sound it has

20

00:00:46,630 --> 00:00:44,719

that same friction with the air always

21

00:00:48,630 --> 00:00:46,640

going way faster than my hands can so

22

00:00:51,110 --> 00:00:48,640

there's a lot of heat that is around

23

00:00:53,270 --> 00:00:51,120

orion that he needs to be protected from

24

00:00:55,830 --> 00:00:53,280

the heat shield for orion it's 16 and a

25

00:00:57,990 --> 00:00:55,840

half feet in diameter it's the largest

26
00:00:59,910 --> 00:00:58,000
most innovative heat shield of its kind

27
00:01:02,549 --> 00:00:59,920
the heat shield weighs about a thousand

28
00:01:04,390 --> 00:01:02,559
pounds the total vehicle mass is about

29
00:01:06,230 --> 00:01:04,400
twenty thousand pounds so it's about one

30
00:01:08,950 --> 00:01:06,240
twentieth the weight of orion just for

31
00:01:10,789 --> 00:01:08,960
the heat shield itself so orion for its

32
00:01:13,350 --> 00:01:10,799
first flight test will see surface

33
00:01:15,190 --> 00:01:13,360
temperatures at around 4000 degrees

34
00:01:17,030 --> 00:01:15,200
fahrenheit so we've developed new

35
00:01:18,710 --> 00:01:17,040
materials for orion that can withstand

36
00:01:20,149 --> 00:01:18,720
those higher temperatures the material

37
00:01:23,190 --> 00:01:20,159
for orion is actually designed to

38
00:01:25,590 --> 00:01:23,200

withstand up to 6000 degrees fahrenheit

39

00:01:27,990 --> 00:01:25,600

my favorite part of working on orion is

40

00:01:29,429 --> 00:01:28,000

just a fantastic group of really really

41

00:01:31,670 --> 00:01:29,439

smart people that i get to work with

42

00:01:33,429 --> 00:01:31,680

every day they're excited and passionate

43

00:01:35,350 --> 00:01:33,439

as i am about

44

00:01:37,590 --> 00:01:35,360

taking humans further than we ever have

45

00:01:39,109 --> 00:01:37,600

before bringing back all the technology

46

00:01:40,789 --> 00:01:39,119

and everything that we've developed out

47

00:01:42,469 --> 00:01:40,799

there back here to earth just to improve