



LARA KEARNEY

DEPUTY MANAGER FOR CREW & SERVICE MODULE

1
00:00:00,766 --> 00:00:08,140
[Music]

2
00:00:08,140 --> 00:00:12,445
>> We just, you know, delivered
the first crew module to the O

3
00:00:12,445 --> 00:00:13,813
and C Building at KSC.

4
00:00:13,813 --> 00:00:22,188
We started a lot of the parts
on to the outside of the CM,

5
00:00:22,188 --> 00:00:25,691
and we've actually put it in
what we call the birdcage.

6
00:00:25,691 --> 00:00:28,661
So we can locate all those
parts, you know, within,

7
00:00:28,661 --> 00:00:30,663
you know, thousands of
an inch to make sure

8
00:00:30,663 --> 00:00:35,134
that everything is
going together okay.

9
00:00:35,134 --> 00:00:37,736
>> Putting, you know, wiring
inside of it, pointing tubes

10
00:00:37,736 --> 00:00:40,206
for the, you know, for
the propulsion system,

11
00:00:40,206 --> 00:00:41,774

putting valves and pumps.

12

00:00:41,774 --> 00:00:46,545

And so all of that happens
in stages right there

13

00:00:46,545 --> 00:00:51,050

in the O and C building.

14

00:00:51,050 --> 00:00:54,787

>> We have our own contract
with USA, United Space Alliance,

15

00:00:54,787 --> 00:00:56,655

to build our Orion missions.

16

00:00:56,655 --> 00:00:59,992

They set up shop in the O
and C. So they will shop,

17

00:00:59,992 --> 00:01:02,895

deliver us to the big shops.

18

00:01:04,597 --> 00:01:07,867

>> The EFT1 will test some
of our high-risk areas.

19

00:01:07,867 --> 00:01:10,636

And one of the high-risk
areas is the thermal

20

00:01:10,636 --> 00:01:11,937

protection system.

21

00:01:11,937 --> 00:01:13,606

>> So the material's
got to be different.

22

00:01:13,606 --> 00:01:18,177

It's got to be able to take
and withstand this energy.

23

00:01:18,177 --> 00:01:20,546

>> Thermal protection
is very difficult

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00:01:20,546 --> 00:01:24,016

in reentry vehicles
to test and to model.

25

00:01:24,016 --> 00:01:26,051

And really you have to fly it

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00:01:26,051 --> 00:01:30,022

to really understand
what's going to happen.

27

00:01:30,022 --> 00:01:32,491

>> We're building ceramic
thermal insulation tiles

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00:01:32,491 --> 00:01:34,260

for the back shell
of the capsule.

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00:01:34,260 --> 00:01:35,961

We're building thermal
barriers for the capsule.

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00:01:35,961 --> 00:01:39,532

And we're building multilayer
insulation for that capsule.

31

00:01:39,532 --> 00:01:45,171

[Music]

32

00:01:45,171 --> 00:01:46,572

>> I am the heat
shield design lead.

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00:01:46,572 --> 00:01:48,741

So we're designing and
building the heat shield

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00:01:48,741 --> 00:01:50,576

for the future Orion missions.

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00:01:50,576 --> 00:01:55,548

>> The EFT1 heat shield is
unique in the way that we have

36

00:01:55,548 --> 00:01:56,982

to [inaudible] to
the entire surface.

37

00:01:56,982 --> 00:02:01,453

>> The heat shield right now
is in our big 20 by 20 router.

38

00:02:01,453 --> 00:02:03,122

It's a five access router.

39

00:02:03,122 --> 00:02:06,959

And right now it's
machining the interior bowl,

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00:02:06,959 --> 00:02:08,260

if you will, the heat shield.

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00:02:08,260 --> 00:02:10,829

>> To cut out that heat
shield on the router,

42

00:02:10,829 --> 00:02:16,135

it could take weeks of machine
time running multiple shifts.

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00:02:16,135 --> 00:02:18,971

It's the biggest heat shield ever constructed.

44

00:02:18,971 --> 00:02:23,275

>> The other component is the heat shield skeleton.

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00:02:23,275 --> 00:02:25,544

So that's the piece of the titanium substructure,

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00:02:25,544 --> 00:02:29,281

the backbone, that makes up the carrier structure itself.

47

00:02:29,281 --> 00:02:32,451

>> Another unique thing is all the hand drilling

48

00:02:32,451 --> 00:02:33,586

that we're doing.

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00:02:33,586 --> 00:02:36,055

So it's not automated by a router in this case.

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00:02:36,055 --> 00:02:38,791

And it all has to be hand drilled

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00:02:38,791 --> 00:02:41,860

by technicians on the inside.

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00:02:41,860 --> 00:02:44,964

>> Yeah all the pieces come pre-machined.

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00:02:44,964 --> 00:02:46,098

And a lot of pilot holes in it.

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00:02:46,098 --> 00:02:49,468

>> Two hundred plus
titanium parts all match

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00:02:49,468 --> 00:02:50,869

drilled together.

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00:02:50,869 --> 00:02:53,806

>> So we have a tool that puts
all the pieces in the right spot

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00:02:53,806 --> 00:02:56,542

and then we drill and high
lock them all together.

58

00:02:56,542 --> 00:03:01,080

[Music]

59

00:03:01,080 --> 00:03:05,351

>> MCC is transforming from
supporting space shuttle

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00:03:05,351 --> 00:03:07,720

and space station to a platform

61

00:03:07,720 --> 00:03:12,591

that will support space
station and MPCB or Orion.

62

00:03:12,591 --> 00:03:15,561

>> In order to adapt to
the future we need to go

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00:03:15,561 --> 00:03:19,531

to a more modern system.

64

00:03:19,531 --> 00:03:20,899

>> I'm a flight controller.

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00:03:20,899 --> 00:03:23,936

So I'm helping prepare the ops portion of this flight test.

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00:03:23,936 --> 00:03:27,373

KFC will operate the vehicle all the way up until launch.

67

00:03:27,373 --> 00:03:29,074

We'll operate the vehicle to splash down.

68

00:03:29,074 --> 00:03:31,810

And the recovery portions come in and take over after that.

69

00:03:31,810 --> 00:03:35,180

This is a test to prepare us for EM1 and EM2

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00:03:35,180 --> 00:03:37,650

and the execution of those flights.

71

00:03:37,650 --> 00:03:39,585

And those flights are what's going to get us back

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00:03:39,585 --> 00:03:42,454

to lunar altitude or beyond.

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00:03:42,454 --> 00:03:44,723

So just this being part of this stepping stone

74

00:03:44,723 --> 00:03:47,526

of a huge milestone of programming [inaudible].