1
00:00:00,450 --> 00:00:01,401
Exhale.

2
00:00:01,401 --> 00:00:02,268
Three, two, one.

3
00:00:02,268 --> 00:00:05,088
Engage.

4
00:00:07,407 --> 00:00:09,409
We are doing this training
because

5
00:00:09,409 --> 00:00:13,163
the X-59 is going to be flying
probably well above 50,000 feet

6
00:00:13,797 --> 00:00:16,166
and when you start
getting to altitudes

7
00:00:16,166 --> 00:00:20,070
above about 40,000 feet, simply
breathing oxygen,

8
00:00:20,220 --> 00:00:24,057
100% oxygen, isn't enough
to keep an aviator conscious.

9
00:00:24,841 --> 00:00:26,342
Above about 40,000 feet,

10
00:00:26,342 --> 00:00:28,645
you actually have to start
delivering pressure

11
00:00:28,645 --> 00:00:33,033
or pressurizing the lungs
of the aviator in order for them

12
00:00:33,033 --> 00:00:34,918
to actually be able
to stay conscious.

13
00:00:34,918 --> 00:00:38,872
The higher you go, the more
pressure you have to provide.

14
00:00:38,938 --> 00:00:40,290
The emergency
that we're concerned about

15
00:00:40,290 --> 00:00:41,691
would be a loss of cabin
pressure.

16
00:00:41,691 --> 00:00:43,727
It isn't something
you want to have happen

17
00:00:44,277 --> 00:00:45,779
for the very first time.

18
00:00:45,779 --> 00:00:49,849
If you lose the cabin pressure
of your aircraft at 54,000 feet.

19
00:00:51,084 --> 00:00:55,105
So today was all about learning
how to breathe when a regulator

20
00:00:55,105 --> 00:00:57,474
is delivering pressure,
a lot of pressure,

21
00:00:57,707 --> 00:01:00,510
60 millimeters of mercury
of pressure, and it's quite a

22
00:01:00,510 --> 00:01:04,247
bit...in 3 -2- 1 pressure.

23
00:01:07,100 --> 00:01:11,037
Square off that breathing.

24
00:01:11,037 --> 00:01:13,757
A normal breathing
pattern for human's is

25
00:01:14,057 --> 00:01:16,793
active inhalation
and passive exhalation.

26
00:01:17,393 --> 00:01:18,228
So positive pressure,

27
00:01:18,228 --> 00:01:20,246
breathing, what we're doing
in this training,

28
00:01:20,430 --> 00:01:22,082
reverses that process.

29
00:01:22,082 --> 00:01:25,468
So now
inhalation is a passive process.

30
00:01:25,618 --> 00:01:29,522
If you just relax everything,
it blows you up like a balloon,

31
00:01:29,522 --> 00:01:31,558
and then you have to actively
exhale,

32
00:01:31,558 --> 00:01:32,909
squeeze muscles in your chest

33
00:01:32,909 --> 00:01:35,095
in order to push that air
back out again...

34
00:01:35,128 --> 00:01:37,197
in 3-2- 1 pressure.

35
00:01:37,730 --> 00:01:40,316
The training starts off
at low pressure

36
00:01:40,517 --> 00:01:41,851
and then we work our way up.

37
00:01:41,851 --> 00:01:43,970
So we start off with

38
00:01:43,970 --> 00:01:46,139
15 millimeters
of mercury of pressure,

39
00:01:46,372 --> 00:01:47,791
and that lets the student
kind of

40
00:01:47,791 --> 00:01:49,893
get a feel for what
it's like to do the

41
00:01:50,243 --> 00:01:51,744
the breathing technique
that we teach

42
00:01:51,744 --> 00:01:54,931
to make sure that they avoid
hypocapnia or hyperventilation.

43
00:01:54,931 --> 00:01:56,633
Go ahead and drop your mask.

44
00:01:56,633 --> 00:01:59,969
Then they go up
to 30 millimeters mercury

45
00:01:59,969 --> 00:02:01,337
for 30 seconds.

46
00:02:01,337 --> 00:02:04,491
The most aviators have ever
experienced is about 30.

47
00:02:05,341 --> 00:02:07,710
However, the system in the X-59

48
00:02:08,027 --> 00:02:11,214
can deliver as much
as 72 millimeters of mercury.

49
00:02:12,182 --> 00:02:14,701
Now, for
training, we take them up to 60.

50
00:02:15,151 --> 00:02:18,922
We give them a quick experience
at 60, about 10 seconds,

51
00:02:19,706 --> 00:02:22,041
where they can really experience
what it feels like to have

52
00:02:22,041 --> 00:02:24,511
that kind of pressure
pushed into your lungs.

53
00:02:25,128 --> 00:02:27,897
Once they've recovered
from that, we'll talk about it

54

00:02:27,897 --> 00:02:29,149
and then we give them another

55
00:02:29,149 --> 00:02:31,668
30 seconds
at 60 millimeters of mercury.

56
00:02:31,668 --> 00:02:32,268
Ready, ma'am?

57
00:02:32,268 --> 00:02:33,303
I'm ready.

58
00:02:35,305 --> 00:02:36,589
There's a lot of reasons
to get down

59
00:02:36,589 --> 00:02:38,358
and get down
as quickly as possible.

60
00:02:38,358 --> 00:02:40,860
And this system is designed
exactly to do that.

61
00:02:40,877 --> 00:02:43,713
It's intended to keep you alive
until you can get below