



1
00:00:00,506 --> 00:00:03,586
[Music]

2
00:00:04,086 --> 00:00:07,076
>> Phase 2 of NASA's Pilot
Breathing Assessment project

3
00:00:07,446 --> 00:00:08,996
to analyze pilot breathing

4
00:00:08,996 --> 00:00:12,256
and high performance jet
aircraft is now complete.

5
00:00:14,396 --> 00:00:17,066
Beginning with Phase
1 in early 2018,

6
00:00:17,386 --> 00:00:20,536
NASA Armstrong research pilots
and a team brought together

7
00:00:20,826 --> 00:00:23,076
by the NASA engineering
and Safety Center

8
00:00:23,276 --> 00:00:25,256
at Langley Research
Center in Virginia,

9
00:00:25,716 --> 00:00:28,306
studied how pilot breathing
can fluctuate in flight,

10
00:00:28,526 --> 00:00:32,746
which can sometimes result
in a physiological episode.

11
00:00:32,746 --> 00:00:36,976

Research pilots flew different profiles of speed, altitude

12

00:00:36,976 --> 00:00:41,096

and aerobatics in NASA

F-15 and F-18 aircraft

13

00:00:41,096 --> 00:00:43,036

to correlate the type of flight

14

00:00:43,036 --> 00:00:45,026

with how it affects

pilot breathing.

15

00:00:45,026 --> 00:00:48,306

They also compared

and tested Navy

16

00:00:48,306 --> 00:00:52,506

and Air Force configurations of oxygen mask regulator systems.

17

00:00:52,506 --> 00:00:56,466

The pilots were subject to

pre and post flight surveys,

18

00:00:56,576 --> 00:01:00,146

pulse oximetry test and

related data gathering.

19

00:01:00,146 --> 00:01:06,036

In the second phase, the

project gathered more data

20

00:01:06,296 --> 00:01:10,156

through refined procedures,

conducted cabin pressure test

21

00:01:10,156 --> 00:01:14,306

in the F-18 and for the

first time tested a new type

22

00:01:14,356 --> 00:01:16,906
of oxygen mask developed
by scientists

23

00:01:16,986 --> 00:01:20,366
at NASA's Jet Propulsion
Laboratory in Pasadena.

24

00:01:21,096 --> 00:01:25,406
The JPL mask uses laser sensors
to determine levels of CO₂

25

00:01:25,406 --> 00:01:28,606
and water exhaled
inside the mask.

26

00:01:28,806 --> 00:01:30,656
The mask was tested
in conjunction

27

00:01:30,656 --> 00:01:34,766
with the already used VigilOX
system, which measures a number

28

00:01:34,766 --> 00:01:38,286
of key parameters including the
pilot's oxygen concentration,

29

00:01:38,896 --> 00:01:40,786
breathing pressures,
and flow rates.

30

00:01:41,616 --> 00:01:44,626
A standardized profile
deliverable is also

31

00:01:44,626 --> 00:01:48,006
in development for other

organizations to reference,

32

00:01:48,186 --> 00:01:50,806

to test a new aircraft's
oxygen system,

33

00:01:51,356 --> 00:01:53,756

or troubleshoot issues
when problems arise.

34

00:01:53,996 --> 00:01:58,016

The research is a step forward
in developing a baseline

35

00:01:58,016 --> 00:02:00,826

of pilot breathing
capability before,

36

00:02:01,126 --> 00:02:02,396

after, and during a flight.

37

00:02:02,986 --> 00:02:09,736

The project will pass this study
on to the Navy and the Air Force

38

00:02:09,856 --> 00:02:13,386

to help shed light on how a
pilot's breathing is affected

39

00:02:13,386 --> 00:02:15,546

while flying high
performance aircraft