



2020

Room 2200
**MAXIMUM
OCCUPANCY
39 PERSONS**

WEST BIRMINGHAM
COMMUNITY COLLEGE

1
00:00:00,860 --> 00:00:06,760
[Jet engine starting]

2
00:00:08,300 --> 00:00:11,160
[Sonic boom]

3
00:00:11,160 --> 00:00:13,160
[Airplane flying]

4
00:00:13,320 --> 00:00:17,960
[Music][Futuristic typing]

5
00:00:19,080 --> 00:00:24,740
>> My name is Brian Griffin, I went to school
at Iowa State University, and I work at NASA

6
00:00:24,759 --> 00:00:28,879
Armstrong as an operations engineer.

7
00:00:30,040 --> 00:00:33,760
Moving out to the desert from Iowa was a huge shock,

8
00:00:34,030 --> 00:00:39,809
in terms of geographic location and the environment.
And seven years later I'm still trying to

9
00:00:39,809 --> 00:00:46,800
get used to brown as opposed to green. But
at the same time I just remind myself where

10
00:00:46,800 --> 00:00:49,300
I get to go work every day.

11
00:00:49,300 --> 00:00:51,020
[Hangar door opening]

12
00:00:51,020 --> 00:00:54,560
[Music]

13

00:00:54,560 --> 00:00:57,660

>>At Armstrong, our purpose is to fly airplanes for flight research

14

00:00:57,670 --> 00:01:02,160

and collect data. The operations engineer is responsible for helping to coordinate all

15

00:01:02,160 --> 00:01:06,970

the efforts required to both integrate the research experiment and then flight test that

16

00:01:06,970 --> 00:01:10,590

research experiment to fulfill that mission.

17

00:01:10,590 --> 00:01:12,750

[Jet engine]

18

00:01:12,750 --> 00:01:17,020

[Radio chatter]

19

00:01:17,020 --> 00:01:19,660

>>We interface on a daily basis with the chief

20

00:01:19,670 --> 00:01:25,610

engineers, the project managers, the ground crew, even our center management In order

21

00:01:25,610 --> 00:01:30,380

to integrate whatever that particular research mission is onto the airframe, do it safely,

22

00:01:30,380 --> 00:01:34,560

and then fly it safely, and collect the data required.

23

00:01:34,560 --> 00:01:37,620

[Airplane taking off]

24

00:01:37,620 --> 00:01:42,820

[Control room background noise]

25

00:01:45,520 --> 00:01:47,340

[Oxygen mask breathing]

26

00:01:48,060 --> 00:01:49,340

>>We'll collect all types of data-

27

00:01:49,340 --> 00:01:54,810

pressure data, air data from the aircraft,
visible and infrared images of flight test

28

00:01:54,810 --> 00:02:00,380

fixtures that are underneath the aircraft
in support of analyzing supersonic airflow

29

00:02:00,380 --> 00:02:03,580

over these fixtures.

30

00:02:03,580 --> 00:02:09,280

[Fighter jet flyover]

31

00:02:09,280 --> 00:02:13,300

>>The project I'm currently
working on, the F-15 high speed aircraft, the

32

00:02:13,310 --> 00:02:19,150

research that it's supporting is hopefully
at one point and time going to allow supersonic

33

00:02:19,150 --> 00:02:25,030

flight commercially over the U.S. and throughout
the world, and I think the ability to have

34

00:02:25,030 --> 00:02:30,830

at least some type of impact in that is a
very rewarding experience.

35

00:02:30,830 --> 00:02:32,460

[Music]

36

00:02:32,460 --> 00:02:33,460

>>A typical flight

37

00:02:33,460 --> 00:02:38,260

test mission starts much earlier than the day of the mission. For example, all the coordination

38

00:02:38,269 --> 00:02:43,310

and scheduling required to get the airspaces, and the aircraft in our system, so everyone's

39

00:02:43,310 --> 00:02:47,400

on the same page and aware that the flight test is going to be performed.

40

00:02:47,400 --> 00:02:51,250

>>Good morning, this is the crew brief for SBLT-2 flight #2.

41

00:02:51,250 --> 00:02:56,620

>>On the flight day we typically have crew briefs, where we brief what the mission is

42

00:02:56,620 --> 00:03:01,340

for that day, we discuss the flight cards, what the flight cards and the test points

43

00:03:01,340 --> 00:03:03,799

are going to be on that mission.

44

00:03:03,799 --> 00:03:08,959

>>The objectives are to determine the stability of the boundary layer and the extent of laminar

45

00:03:08,960 --> 00:03:14,340

flow for the test article surface. This chart

here shows that flight envelope that we have

46

00:03:14,340 --> 00:03:19,209

cleared for this series of flights. Failure of any of our safety of flight parameters

47

00:03:19,209 --> 00:03:21,949

is an immediate cancellation and RTB.

48

00:03:21,949 --> 00:03:24,000

>>All right- we'll see you out there in a little bit.

49

00:03:24,000 --> 00:03:28,299

>>After the brief, we'll staff the control room, get the control room screens all up

50

00:03:28,299 --> 00:03:32,079

and running. We'll do day of flight checks on the ground, which is ensuring that the

51

00:03:32,079 --> 00:03:36,239

aircraft is ready to go before we take off. And then the flight mission itself, we'll

52

00:03:36,239 --> 00:03:39,919

take off, perform the flight cards as briefed.

53

00:03:39,920 --> 00:03:41,580

>>NASA 836, NASA 1...

54

00:03:41,580 --> 00:03:42,480

>>Go ahead.

55

00:03:42,480 --> 00:03:47,040

>>Yeah, we're ready for card 5, the wing rock, and turning the camera to standby when able.

56

00:03:47,040 --> 00:03:48,460

>>There's your wing rock.

57

00:03:48,460 --> 00:03:50,580

[Airplane flying]

58

00:03:50,580 --> 00:03:52,100

>>Copy.

59

00:03:52,100 --> 00:03:57,699

>>My role in the control room as ops engineer on the F-15 project is to serve as the mission

60

00:03:57,699 --> 00:04:03,470

controller, so we are the interface between the control room personnel and the pilot flying

61

00:04:03,470 --> 00:04:04,670

the airplane.

62

00:04:04,670 --> 00:04:06,540

[Radio chatter]

63

00:04:06,540 --> 00:04:09,820

>>A typical communication that goes back and forth between the controller

64

00:04:09,820 --> 00:04:15,959

and the pilot is just verifying what flight card we're on, what test point we're on, what

65

00:04:15,959 --> 00:04:21,540

the next maneuver might be, if there's information that the principal investigators are looking

66

00:04:21,540 --> 00:04:25,220

for, or any information from anyone else in the control room that needs to be relayed

67

00:04:25,220 --> 00:04:29,479

to the pilot, we'll be letting them know about

that. We'll let the pilot know about how

68

00:04:29,479 --> 00:04:33,860

much fuel he still has on board, airspace checks, if he's getting close to boundaries

69

00:04:33,860 --> 00:04:38,439

and he needs to make turns. Just any information that can increase the situational awareness

70

00:04:38,439 --> 00:04:44,639

for the pilot, and also help the pilot perform the mission, complete the test cards, and

71

00:04:44,639 --> 00:04:46,159

then come back and land.

72

00:04:46,159 --> 00:04:47,860

>>Mission Controller, this is Flight on Data 1,

73

00:04:47,860 --> 00:04:50,480

we're ready for the supersonic run.

74

00:04:50,480 --> 00:04:53,980

>>Copy. NASA 836, NASA 1 is ready for the

75

00:04:53,990 --> 00:04:57,240

run, and I have you right now at 48.5 for reference.

76

00:04:58,180 --> 00:05:01,000

1.83...4...

77

00:05:01,000 --> 00:05:02,960

...5...hold!

78

00:05:02,960 --> 00:05:06,680

>>There is a lot of pressure associated with being the mission controller, the only person

79
00:05:06,680 --> 00:05:11,750
talking to the pilot. That pressure seems
to decrease with experience, the more flights

80
00:05:11,750 --> 00:05:13,170
you perform.

81
00:05:13,170 --> 00:05:16,940
>>Support, NASA 836 flight like to RTB straight in.

82
00:05:16,940 --> 00:05:21,060
>>NASA 836, roger straight in runway 4 right
approved, wind 3-2-0 at niner,

83
00:05:21,060 --> 00:05:22,400
altimeter 3-0-0-niner

84
00:05:22,400 --> 00:05:26,340
>>3-0-0-niner and we'll start our descent.

85
00:05:26,340 --> 00:05:30,020
>>Being the guy on the ground, talking to
the pilot, and doing that communication with

86
00:05:30,030 --> 00:05:34,150
the rest of the control room is a rewarding
experience, when you come back and capture

87
00:05:34,150 --> 00:05:37,909
the data that you wanted to capture and everyone
is happy with the flight. You're going to

88
00:05:37,909 --> 00:05:41,650
have a lot of success, but sometimes you're
going to have failures, and the important

89
00:05:41,650 --> 00:05:46,830
aspect is to not just learn from this success,
but also learn from the failures.

90

00:05:46,830 --> 00:05:49,110

[Airplane landing]

91

00:05:49,110 --> 00:05:51,630

Being able to have the chance to fly in these high-performance

92

00:05:51,630 --> 00:05:56,199

aircraft in the backseat, and perform mission

93

00:05:56,199 --> 00:06:03,759

duties is also a rewarding experience in itself.

Let alone you'd be able to just fly in a fighter jet.

94

00:06:03,759 --> 00:06:07,759

[Music]

95

00:06:07,760 --> 00:06:12,040

The flight test engineer sits in the

backseat, responsible for flipping switches,

96

00:06:12,050 --> 00:06:16,889

monitoring data, and communicating to the

pilot, and also to the ground during the research

97

00:06:16,889 --> 00:06:20,649

flight, to make sure that the mission is being accomplished.

98

00:06:20,649 --> 00:06:22,129

[Music][Canopy closing]

99

00:06:22,129 --> 00:06:24,969

[Airplane taking off]

100

00:06:27,180 --> 00:06:29,180

[Airplane flying]

101

00:06:30,300 --> 00:06:32,300

>>Flying past Mach 1 is definitely

102

00:06:32,300 --> 00:06:38,270

an excitement, but you don't necessarily feel that you're going past Mach 1, until you start

103

00:06:38,270 --> 00:06:43,060

to slow back down. When you slow back down you can definitely feel the deceleration,

104

00:06:43,060 --> 00:06:45,860

it's very pronounced.

105

00:06:45,860 --> 00:06:48,940

[Music][Airplane flying]

106

00:06:53,140 --> 00:06:56,100

>>Getting used to the motion sickness is definitely always a challenge,

107

00:06:56,110 --> 00:07:03,110

but I think the benefits of being able to fly outweigh those challenges.

108

00:07:03,110 --> 00:07:05,770

[Music][Airplane landing]

109

00:07:08,380 --> 00:07:13,980

Every day in OE is typically different than the day before, and the day upcoming.

110

00:07:13,980 --> 00:07:18,380

As an Ops Engineer, the overall picture is to ensure the mission success,

111

00:07:18,380 --> 00:07:21,080

while also ensuring that the integrity

112

00:07:21,080 --> 00:07:27,139

of the air frame is safe, and the airplane itself is air worthy. The chance to come to

113

00:07:27,139 --> 00:07:31,909

work every day and work on these things, and
be involved in this flight research, to help