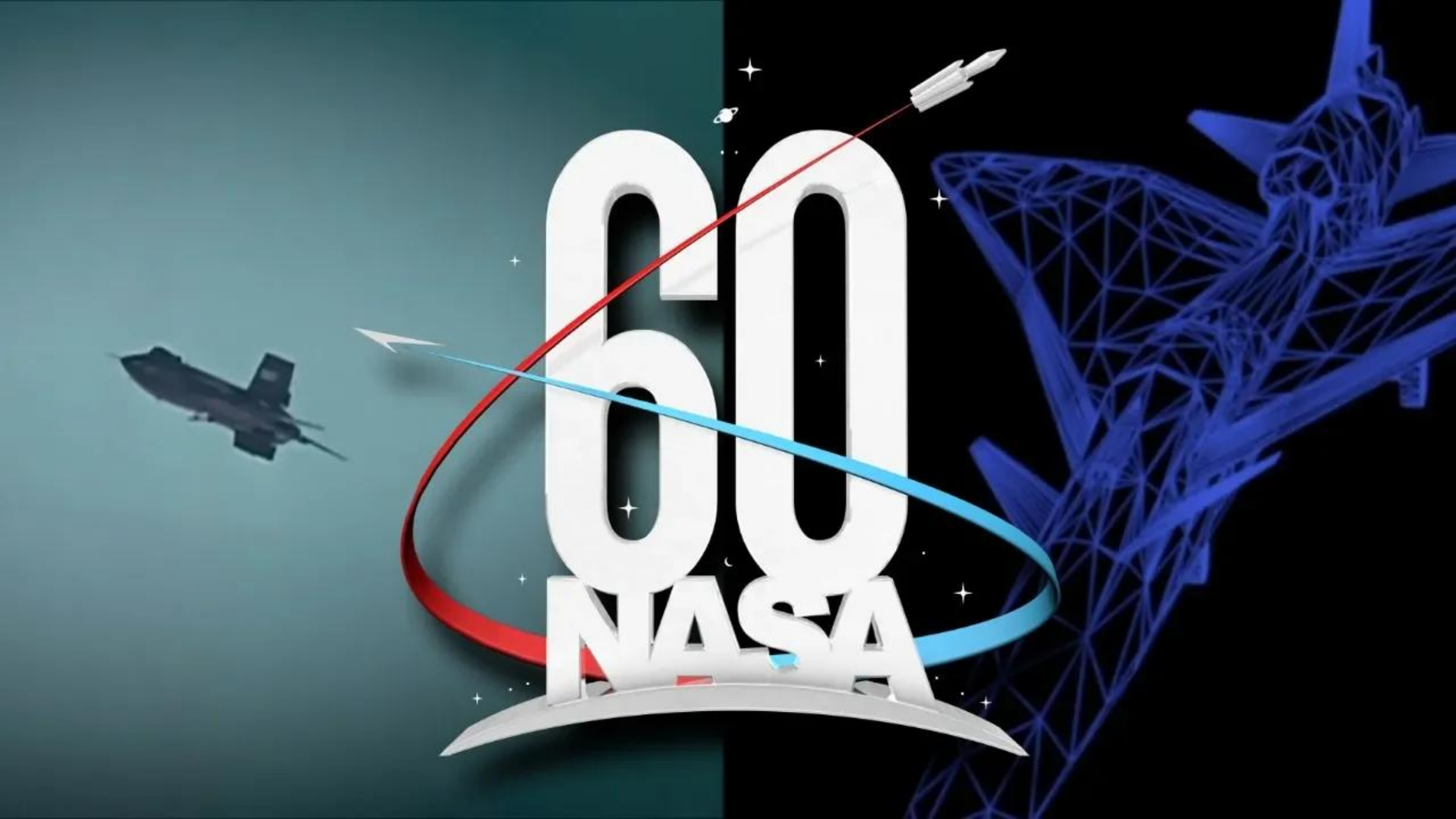
60
NASA

1
00:00:00,000 --> 00:00:03,417
(rapid electronic music)

2
00:00:19,231 --> 00:00:21,814
(swagger rock)

3
00:00:23,900 --> 00:00:27,980
- The design concept reduces
the drag at transonic speeds,

4
00:00:27,980 --> 00:00:31,390
allows the airplane to
fly faster and farther.

5
00:00:31,390 --> 00:00:33,110
- We've actually done aeronautics research

6
00:00:33,110 --> 00:00:36,100
for over 100 years; so,
NASA's predecessor was

7
00:00:36,100 --> 00:00:38,960
the National Advisory
Committee for Aeronautics.

8
00:00:38,960 --> 00:00:42,000
The NACA field laboratories
became part of NASA,

9
00:00:42,000 --> 00:00:44,270
and we continue that tradition.

10
00:00:44,270 --> 00:00:46,440
- They developed a lot of the theories

11
00:00:46,440 --> 00:00:47,900
with the people they had back then;

12

00:00:47,900 --> 00:00:49,930
they developed wind tunnels.

13
00:00:49,930 --> 00:00:53,490
We ran the wind tunnels
actually three shifts a day

14
00:00:53,490 --> 00:00:56,020
because there was that much demand

15
00:00:56,020 --> 00:00:58,530
for the data from the companies,

16
00:00:58,530 --> 00:01:00,490
and that who we were doing it for.

17
00:01:00,490 --> 00:01:04,370
We had lady computers who
reduced the data for us.

18
00:01:04,370 --> 00:01:05,203
(auxiliary engine roaring)

19
00:01:05,203 --> 00:01:06,550
- [Control] Ready to launch, now.

20
00:01:07,478 --> 00:01:08,411
(main engines blast)

21
00:01:08,420 --> 00:01:13,620
- The X-15 was in many ways
the ultimate research tool.

22
00:01:13,940 --> 00:01:17,360
The very first aircraft to fly into space

23
00:01:17,360 --> 00:01:20,590
and come back and land
horizontally on a runway.

24
00:01:20,590 --> 00:01:22,204
- We had to make the engine run

25
00:01:22,204 --> 00:01:24,719
in order to make the plane fly.

26
00:01:24,719 --> 00:01:26,710
It had to be dropped from altitude;

27
00:01:26,710 --> 00:01:29,190
it had to be started at altitude;

28
00:01:29,190 --> 00:01:32,860
and it had to have stable combustion.

29
00:01:32,860 --> 00:01:34,230
And we made it work.

30
00:01:34,230 --> 00:01:37,520
- It was very much an experimental,

31
00:01:37,520 --> 00:01:40,430
one of a kind laboratory in the sky

32
00:01:40,430 --> 00:01:43,930
to investigate the next great
hurdle, which was hypersonics.

33
00:01:43,930 --> 00:01:46,860
And that's a problem we're
still working on today.

34
00:01:46,860 --> 00:01:50,660
- So we've always been trying
to go farther, faster, higher;

35
00:01:50,660 --> 00:01:52,580

that's what mankind has
always wanted to do,

36
00:01:52,580 --> 00:01:53,880
to explore.

37
00:01:53,880 --> 00:01:56,290
That's what NASA does; we explore.

38
00:01:56,290 --> 00:01:58,770
And now NASA is looking at a new X-plane

39
00:01:58,770 --> 00:02:00,770
so that we can make it a little bit easier

40
00:02:00,770 --> 00:02:03,850
to get across the country,
about twice as fast.

41
00:02:03,850 --> 00:02:05,840
- And the innovation there is actually

42
00:02:05,840 --> 00:02:08,040
the shape of the aircraft, so that we can

43
00:02:08,040 --> 00:02:10,510
enable supersonic flight over land,

44
00:02:10,510 --> 00:02:14,030
and that'll open up a whole new industry.

45
00:02:14,030 --> 00:02:16,590
- Here we are, looking at how do we take

46
00:02:16,590 --> 00:02:20,300
all of those things that
we've learned historically,

47

00:02:20,300 --> 00:02:22,440
and place them in an aircraft

48
00:02:22,440 --> 00:02:25,660
that can actually fly faster
than the speed of sound

49
00:02:25,660 --> 00:02:27,427
without creating the sonic boom.

50
00:02:27,427 --> 00:02:28,260
(sonic boom)

51
00:02:28,260 --> 00:02:30,330
And if we can accomplish that objective,

52
00:02:30,330 --> 00:02:32,840
then people all across the United States

53
00:02:32,840 --> 00:02:34,870
and in fact all across the world

54
00:02:34,870 --> 00:02:37,670
will be able to fly faster
than the speed of sound

55
00:02:37,670 --> 00:02:41,060
and in fact they could fly
multiple times the speed of sound

56
00:02:41,060 --> 00:02:44,510
without disrupting
communities on the ground.

57
00:02:44,510 --> 00:02:47,610
We want to be at the very
leading edge of technology

58
00:02:47,610 --> 00:02:50,138

when it comes to supersonic flight.

59
00:02:56,560 --> 00:02:58,990
- When you look out that window
and you see that winglet,

60
00:02:58,990 --> 00:03:01,270
that was developed originally by NASA.

61
00:03:01,270 --> 00:03:03,421
There's so many things that NASA has done

62
00:03:03,421 --> 00:03:05,893
that we're with you when you fly.

63
00:03:11,360 --> 00:03:13,790
- The computers used on the Space Shuttle,

64
00:03:13,790 --> 00:03:15,270
the prototype of those computers

65
00:03:15,270 --> 00:03:18,420
were actually flown on the F-8
Digital Fly-By-Wire airplane.

66
00:03:18,420 --> 00:03:21,920
- 80% of the world's
commercial airliner fleet today

67
00:03:21,920 --> 00:03:25,570
use that same technology in
order to fly their aircraft.

68
00:03:25,570 --> 00:03:29,290
And almost all the military
aircraft that are made today.

69
00:03:29,290 --> 00:03:31,750
- I remember the first time

I was flying an F-18 Hornet.

70
00:03:31,750 --> 00:03:33,430
I was in a bit of turbulence,

71
00:03:33,430 --> 00:03:35,800
and I thought I was holding
the airplane steady,

72
00:03:35,800 --> 00:03:37,720
and my flight controls were moving.

73
00:03:37,720 --> 00:03:40,174
Well those technologies
and those capabilities

74
00:03:40,174 --> 00:03:42,825
were developed by NASA.

75
00:03:51,730 --> 00:03:55,360
- Electric propulsion really
just opens up the playing field

76
00:03:55,360 --> 00:03:57,630
for what you can do with airplanes.

77
00:03:57,630 --> 00:03:59,360
Could be an air-taxi type vehicle

78
00:03:59,360 --> 00:04:01,290
or two or three, four people will travel

79
00:04:01,290 --> 00:04:04,330
across a downtown area and be
able to get to a destination

80
00:04:04,330 --> 00:04:06,870
much quicker than being
stuck on the freeway.

81
00:04:06,870 --> 00:04:10,080
And so it's going to create
all new types of designs

82
00:04:10,080 --> 00:04:12,930
for vertical lift transitioning
to forward flight,

83
00:04:12,930 --> 00:04:14,144
and the predictions are that we'll be

84
00:04:14,144 --> 00:04:16,513
three times more efficient.

85
00:04:20,260 --> 00:04:22,360
- Unmanned aircraft systems
follows in a long line

86
00:04:22,360 --> 00:04:25,130
of technologies that
NASA always is pursuing

87
00:04:25,130 --> 00:04:28,080
to improve the quality of
life for your everyday person.

88
00:04:28,080 --> 00:04:30,790
Like, they examine bridges or buildings

89
00:04:30,790 --> 00:04:32,780
that perhaps were
damaged in an earthquake,

90
00:04:32,780 --> 00:04:34,350
find out where the damage is.

91
00:04:34,350 --> 00:04:36,310
You could do that by never having

92
00:04:36,310 --> 00:04:39,000
to actually go into the
building or walk on the bridge,

93
00:04:39,000 --> 00:04:40,646
so that makes it safer for people.

94
00:04:40,646 --> 00:04:42,370
(pilot speaks on radio)

95
00:04:43,630 --> 00:04:46,000
- For 60 years we've been exploring.

96
00:04:46,000 --> 00:04:48,570
We stand on the shoulders of
giants that came before us.

97
00:04:48,570 --> 00:04:51,440
They figured it out and we've
taken it a little bit farther.