1
00:00:00,000 --> 00:00:16,830
you

2
00:00:22,350 --> 00:00:19,440
for the past six years flights have been

3
00:00:24,690 --> 00:00:22,360
made by a pair of x-29 aircraft from the

4
00:00:54,240 --> 00:00:24,700
desert with NASA's Dryden Flight

5
00:01:00,700 --> 00:00:57,729
the x-29 requires a new breed of

6
00:01:03,220 --> 00:01:00,710
aeronautical technology because it's

7
00:01:05,560 --> 00:01:03,230
thin wings close-coupled canards the

8
00:01:08,200 --> 00:01:05,570
smaller movable surfaces in front of the

9
00:01:19,180 --> 00:01:08,210
wings and rear straight flaps make it

10
00:01:25,990 --> 00:01:19,190
naturally unstable in flight to the

11
00:01:27,880 --> 00:01:26,000
control the computers are is necessary

12
00:01:29,200 --> 00:01:27,890
to fly the airplane is the hydraulic

13
00:01:31,960 --> 00:01:29,210

system is that actually moves the

14
00:01:34,180 --> 00:01:31,970
actuators steve ishmael one of the

15
00:01:36,370 --> 00:01:34,190
program's principal test pilots has

16
00:01:39,070 --> 00:01:36,380
experienced the benefits of combining

17
00:01:42,969 --> 00:01:39,080
new interrelated technology into one

18
00:01:44,710 --> 00:01:42,979
airplane it gets at another advance in

19
00:01:46,600 --> 00:01:44,720
technology where you see the interaction

20
00:01:49,359 --> 00:01:46,610
for instance between the canard and this

21
00:01:52,180 --> 00:01:49,369
forward sweep and and that's that's very

22
00:01:54,880 --> 00:01:52,190
very complex and it varies is your angle

23
00:01:56,590 --> 00:01:54,890
attack and your Mach changes that's part

24
00:02:01,060 --> 00:01:56,600
of the beauty in the problem of the art

25
00:02:03,429 --> 00:02:01,070
of designing airplanes the advantage of

26
00:02:05,620 --> 00:02:03,439
a forward swept design is that air

27
00:02:08,440 --> 00:02:05,630
moving over the wing tends to flow in

28
00:02:10,270 --> 00:02:08,450
word rather than outward this allows air

29
00:02:12,610 --> 00:02:10,280
flow to remain smooth around the

30
00:02:15,400 --> 00:02:12,620
wingtips and makes the x-29 easier to

31
00:02:20,510 --> 00:02:15,410
control and extreme maneuvers it's

32
00:02:20,520 --> 00:02:23,920
sometimes

33
00:02:27,699 --> 00:02:25,839
modern fighter jets have trouble

34
00:02:34,569 --> 00:02:27,709
handling anything in excess of 30

35
00:02:39,030 --> 00:02:34,579
degrees six years the x-29 has proven

36
00:02:45,270 --> 00:02:42,089
flight systems and the use of composites

37
00:02:47,880 --> 00:02:45,280
in wing construction this highly

38
00:02:49,949 --> 00:02:47,890

successful flight test program will

39
00:02:52,589 --> 00:02:49,959
almost certainly influence future