



Time	Altitude	Speed	Temperature	Humidity	Pressure	Latitude	Longitude
10:00:00	10000	250	15	10	1013	40.7128	-88.0070
10:00:05	10000	250	15	10	1013	40.7128	-88.0070
10:00:10	10000	250	15	10	1013	40.7128	-88.0070
10:00:15	10000	250	15	10	1013	40.7128	-88.0070
10:00:20	10000	250	15	10	1013	40.7128	-88.0070
10:00:25	10000	250	15	10	1013	40.7128	-88.0070
10:00:30	10000	250	15	10	1013	40.7128	-88.0070
10:00:35	10000	250	15	10	1013	40.7128	-88.0070
10:00:40	10000	250	15	10	1013	40.7128	-88.0070
10:00:45	10000	250	15	10	1013	40.7128	-88.0070
10:00:50	10000	250	15	10	1013	40.7128	-88.0070
10:00:55	10000	250	15	10	1013	40.7128	-88.0070
10:01:00	10000	250	15	10	1013	40.7128	-88.0070

1

00:00:00,800 --> 00:00:08,660

Since the 2019 delivery of NASA's first all-electric X plane, the X-57 Maxwell.

2

00:00:08,660 --> 00:00:12,780

Engineers have been busy getting the vehicle ready for ground tests at NASA's

3

00:00:12,780 --> 00:00:17,640

Armstrong Flight Research Center in California. Currently in its first

4

00:00:17,640 --> 00:00:22,199

configuration as an all-electric aircraft known as modification 2 or just

5

00:00:22,199 --> 00:00:27,599

mod 2. The X-57 aircraft and its various components have gone through several

6

00:00:27,599 --> 00:00:32,730

verification tests including ground vibration testing also known as GVT on

7

00:00:32,730 --> 00:00:39,030

the X plane's wing and fuselage. A type of aircraft structural ground test, the GVT

8

00:00:39,030 --> 00:00:42,960

exposes the vehicle to various frequencies of vibration. The aircraft is

9

00:00:42,960 --> 00:00:47,000

barely moving when we actually do this test the vibrations but the

10

00:00:47,000 --> 00:00:50,730

accelerometers are very sensitive and then we're able to magnify the

11
00:00:50,730 --> 00:00:57,930
deflection so we can visualize it. By
measuring the aircraft's response NASA

12
00:00:57,930 --> 00:01:01,320
engineers are able to verify whether the
characteristics of the aircraft matched

13
00:01:01,320 --> 00:01:06,540
their predicted models. This data is
particularly critical in analyzing X-57's

14
00:01:06,540 --> 00:01:10,380
ability to avoid flutter during flight.
It's very important to know especially

15
00:01:10,380 --> 00:01:15,020
in the flight predictive modeling because you want to know how the aircraft

16
00:01:15,020 --> 00:01:20,659
behaves as it's going up in altitude
during flight and we want to

17
00:01:20,659 --> 00:01:25,110
characterize the frequencies and make
sure that they match the models that we

18
00:01:25,110 --> 00:01:30,810
are seeing. Meanwhile engineers from NASA
and Empirical Systems Aerospace of San

19
00:01:30,810 --> 00:01:36,299
Luis Obispo California began
environmental vibration testing on X-57's

20
00:01:36,299 --> 00:01:40,530
cruise motor controllers. Which provide
key power conversions for the X plane's

21

00:01:40,530 --> 00:01:44,700

motors and propellers. By testing the cruise motor controllers at vibration

22

00:01:44,700 --> 00:01:48,780

levels up to and beyond what it would experience in flight. The team can verify

23

00:01:48,780 --> 00:01:52,470

whether or not the design meets flight standards. So once this testing is

24

00:01:52,470 --> 00:01:57,090

complete, there are some changes that we will need to make to the flight cruise

25

00:01:57,090 --> 00:02:03,750

motor controllers. But if this test passes it is a good sign for the project and

26

00:02:03,750 --> 00:02:08,489

we'll be able to move forward with acceptance level and qualification level

27

00:02:08,489 --> 00:02:13,430

testing on our flight controllers. Environmental and structural ground

28

00:02:13,430 --> 00:02:18,230

tests mark important tasks to check off as X-57 proceeds through functional tests