
NORTH

1
00:00:06,530 --> 00:00:09,870
The moon... it's our closest celestial neighbor.

2
00:00:09,870 --> 00:00:14,750
And yet more than 40 years after astronauts first set foot on the lunar surface,

3
00:00:14,750 --> 00:00:18,180
there are still many mysteries to solve.

4
00:00:18,180 --> 00:00:22,180
NASA's twin Gravity Recovery and Interior Laboratory spacecraft...

5
00:00:22,180 --> 00:00:26,170
known collectively as GRAIL... are ready for their lunar assignment.

6
00:00:26,170 --> 00:00:30,090
The spacecraft will look at the moon's gravitational field to determine the structure of the

7
00:00:30,090 --> 00:00:33,540
lunar interior, from crust to core.

8
00:00:33,540 --> 00:00:38,170
Scientists hope what they learn from GRAIL's mission will advance understanding of the thermal

9
00:00:38,170 --> 00:00:41,190
evolution of the moon.

10
00:00:41,190 --> 00:00:45,320
The United Launch Alliance Delta II rocket that will launch the GRAIL spacecraft

11
00:00:45,320 --> 00:00:51,260
began to take shape at Cape Canaveral Air Force Station's Launch Complex 17B in April.

12
00:00:51,260 --> 00:00:58,380
The rocket's first stage arrived at the pad on April 7 and was lifted into place.

13
00:00:58,380 --> 00:01:03,960

Later in the month, the nine solid-fueled boosters were delivered to the launch complex and

14
00:01:03,960 --> 00:01:07,390
attached to the rocket's first stage.

15
00:01:07,390 --> 00:01:12,800
Workers transported the Delta's second stage to the pad in May and hoisted it atop the first stage booster.

16
00:01:12,800 --> 00:01:22,760
May also marked the arrival of the Air Force C-17 cargo plane carrying the GRAIL spacecraft.

17
00:01:22,760 --> 00:01:28,330
The plane ferried the spacecraft from Lockheed Martin's Denver plant where it was built to

18
00:01:28,330 --> 00:01:33,330
Florida where it would undergo its prelaunch processing.

19
00:01:33,330 --> 00:01:38,150
After it was unloaded at the Shuttle Landing Facility at NASA's Kennedy Space Center,

20
00:01:38,150 --> 00:01:44,880
GRAIL was transported to the Astrotech payload processing facility in nearby Titusville.

21
00:01:44,880 --> 00:01:49,960
Once inside the processing facility, the spacecraft was uncrated before technicians

22
00:01:49,960 --> 00:01:53,600
attached and tested the solar panels.

23
00:01:53,600 --> 00:01:58,410
The electrical power subsystem on each of GRAIL's twin spacecraft includes two solar

24
00:01:58,410 --> 00:02:03,200
arrays and a lithium ion battery.

25
00:02:03,200 --> 00:02:09,090
Each solar array is capable of producing no less than 700 watts.

26
00:02:09,090 --> 00:02:13,670
Shortly after GRAIL separates from the rocket, the arrays will be deployed and remain fixed

27
00:02:13,670 --> 00:02:16,310
throughout the mission.

28
00:02:16,310 --> 00:02:21,850
The next step for the processing team was to move the spacecraft in late July to Astrotech's

29
00:02:21,850 --> 00:02:26,000
hazardous processing facility for fueling.

30
00:02:26,000 --> 00:02:30,940
With the scheduled launch just a month away, the twin spacecraft were weighed before they were

31
00:02:30,940 --> 00:02:34,870
stacked in their launch configuration.

32
00:02:34,870 --> 00:02:38,890
Once attached to the spacecraft adapter ring in their side-by-side launch position,

33
00:02:38,890 --> 00:02:44,700
GRAIL was placed in a protective canister for transport to the launch pad.

34
00:02:44,700 --> 00:02:51,710
On August 18, the spacecraft arrived at the launch pad and was lifted atop the Delta II rocket.

35
00:02:51,710 --> 00:02:59,310
Technicians secured the clamshell-shaped payload fairing around the spacecraft on August 24.

36
00:02:59,310 --> 00:03:03,890
The fairing -- which will be jettisoned once the spacecraft is outside the Earth's atmosphere