1
00:00:01,310 --> 00:00:06,200
Music

2
00:00:06,200 --> 00:00:10,220
NASA's newest Mars rover, Curiosity, began its launch-site prep in

3
00:00:10,220 --> 00:00:14,220
Florida on May 12, 2011.

4
00:00:14,220 --> 00:00:16,780
That's when the first three elements of the spacecraft --

5
00:00:16,780 --> 00:00:20,740
officially known as the Mars Science Laboratory -- were delivered to Kennedy Space

6
00:00:20,740 --> 00:00:26,520
Center's Shuttle Landing Facility aboard an Air Force C-17 cargo plane.

7
00:00:26,520 --> 00:00:30,220
After the cruise stage, backshell and heat shield were unloaded and

8
00:00:30,220 --> 00:00:35,940
transported to the Payload Hazardous Servicing Facility, processing got under way.

9
00:00:35,940 --> 00:00:40,390
Technicians installed a solar array panel to the cruise stage and

10
00:00:40,390 --> 00:00:43,050
processed the spacecraft's backshell.

11
00:00:43,050 --> 00:00:46,760
The backshell carries the parachute and several components used during

12
00:00:46,760 --> 00:00:51,000
later stages of entry, descent and landing of the rover.

13
00:00:51,000 --> 00:00:54,870

The aeroshell -- comprising the backshell and the heat shield --

14
00:00:54,870 --> 00:00:58,150
was tested on a spin table before technicians used an overhead

15
00:00:58,150 --> 00:01:01,660
crane to separate the two components.

16
00:01:01,660 --> 00:01:06,230
On June 22, a cargo plane arrived at Kennedy carrying the rover and

17
00:01:06,230 --> 00:01:09,500
the spacecraft's rocket-powered descent stage.

18
00:01:09,500 --> 00:01:12,850
The descent stage will fly the rover during the final moments before its

19
00:01:12,850 --> 00:01:15,380
landing on the Martian surface.

20
00:01:15,380 --> 00:01:19,200
After transportation to the servicing facility, technicians removed

21
00:01:19,200 --> 00:01:22,220
the protective wrapping from the descent stage thrusters for

22
00:01:22,220 --> 00:01:24,970
documenting and inspection.

23
00:01:24,970 --> 00:01:28,280
The rover itself was removed from its protective carrier and

24
00:01:28,280 --> 00:01:31,420
moved by crane to a workstand.

25
00:01:31,420 --> 00:01:36,490
The rover's processing and testing began, including a series of rotation tests.

26
00:01:36,490 --> 00:01:40,050
The wheels, as well as instrument mast and science boom,

27
00:01:40,050 --> 00:01:43,030
were put through a series of deployment tests.

28
00:01:43,030 --> 00:01:47,250
Enclosed in a shipping cask, the spacecraft's power generating multi-mission

29
00:01:47,250 --> 00:01:52,550
radioisotope thermoelectric generator arrived at Kennedy June 30 and was moved to a

30
00:01:52,550 --> 00:01:56,560
storage facility where workers removed the cask.

31
00:01:56,560 --> 00:01:59,970
A fit check of the generator was conducted in July.

32
00:01:59,970 --> 00:02:04,480
Also in July, the rover's launch vehicle began to take shape.

33
00:02:04,480 --> 00:02:08,970
A United Launch Alliance Atlas V with four solid rocket boosters attached will

34
00:02:08,970 --> 00:02:12,630
loft the Mars Science Laboratory into space.

35
00:02:12,630 --> 00:02:16,890
The Atlas V first stage and Centaur second stage were offloaded from the

36
00:02:16,890 --> 00:02:22,080
Delta Mariner transport ship at Port Canaveral, just a few miles from the launch site.

37
00:02:22,080 --> 00:02:25,380
They were transported to Cape Canaveral Air Force Station and

38
00:02:25,380 --> 00:02:29,340

delivered to the Atlas Spaceflight Operations Center.

39
00:02:29,340 --> 00:02:35,030
A crane was used to position the 106.5-foot-long stage inside the integration

40
00:02:35,030 --> 00:02:38,340
facility and lower it onto its launch platform.

41
00:02:38,340 --> 00:02:42,150
Several days later, technicians began the installation of the four

42
00:02:42,150 --> 00:02:47,820
solid rocket motors using a lifting device to elevate them to an upright position.

43
00:02:47,820 --> 00:02:51,810
An overhead crane lifted the Centaur second stage of the rocket and

44
00:02:51,810 --> 00:02:55,140
technicians attached it to the lower stage.

45
00:02:55,140 --> 00:02:58,750
In the payload processing facility, the dual sections of the Atlas V

46
00:02:58,750 --> 00:03:02,390
payload fairing that will protect the spacecraft during launch and

47
00:03:02,390 --> 00:03:03,950
ascent were prepared.

48
00:03:03,950 --> 00:03:06,940
Technicians helped guide the rocket-powered descent stage over

49
00:03:06,940 --> 00:03:09,840
Curiosity for integration.

50
00:03:09,840 --> 00:03:12,600
Then they positioned the backshell as it was lowered over the rover

51
00:03:12,600 --> 00:03:14,960
for encapsulation.

52
00:03:14,960 --> 00:03:18,220
Technicians cleaned the fairing acoustic protection system to meet

53
00:03:18,220 --> 00:03:21,470
NASA's planetary protection requirements.

54
00:03:21,470 --> 00:03:26,780
The spacecraft's cruise stage was joined to the aeroshell containing Curiosity.

55
00:03:26,780 --> 00:03:30,880
The cruise stage provides solar power, thrusters for navigation,

56
00:03:30,880 --> 00:03:35,390
and heat exchangers to the rover during its flight from Earth to Mars.

57
00:03:35,390 --> 00:03:38,340
The spacecraft was then enclosed between the two halves of the

58
00:03:38,340 --> 00:03:41,470
payload fairing and placed on a transporter for the move to

59
00:03:41,470 --> 00:03:44,640
Space Launch Complex 41.

60
00:03:44,640 --> 00:03:48,660
As dawn broke on November 3, the payload was ready to be lifted at

61
00:03:48,660 --> 00:03:52,840
Space Launch Complex 41's Vertical Integration Facility.

62
00:03:52,840 --> 00:03:57,280
Once atop the rocket, the payload was attached, and the radioisotope

63
00:03:57,280 --> 00:04:00,840

thermoelectric generator was installed.

64
00:04:00,840 --> 00:04:04,340
With its final Earth-bound journey completed, the rover Curiosity