1
00:00:00,020 --> 00:00:04,030
Commentator: T-minus 15 seconds

2
00:00:04,050 --> 00:00:08,070
T-minus 10.....9.....8

3
00:00:08,090 --> 00:00:12,270
7.....6.....5.....4

4
00:00:12,290 --> 00:00:16,300
go for main engine start....3.....2.....1

5
00:00:16,320 --> 00:00:20,340
0...and ignition and liftoff of the

6
00:00:20,360 --> 00:00:24,390
Atlas V with the Solar Dynamics Observatory, learning why
00:00:24.41,00:00:24.40
our star is changing our lives.

7
00:00:24,420 --> 00:00:28,420
our star is changing our lives. Dean Pesnell: Missions at

8
00:00:28,440 --> 00:00:32,430
NASA are built in several phases.

9
00:00:32,450 --> 00:00:36,470
The phase that we're in is the build and launch phase, where we put

10
00:00:36,490 --> 00:00:40,500
everything together, we test it to make sure it works, stick it up on top of a rocket and

11
00:00:40,520 --> 00:00:44,540
launch it into space. Once it's in space then we test it out again.

12
00:00:44,560 --> 00:00:51,580
Music

13
00:00:51,600 --> 00:00:55,640
Elizabeth Citrin: During the five or six years that we're building a mission, building the hardware, designing

14
00:00:55,660 --> 00:00:59,680
testing, we're on the ground. And this isn't where the observatory lives. It lives

15
00:00:59,700 --> 00:01:03,870
in space. So that's what the commissioning phase is. We're in our home

16
00:01:03,890 --> 00:01:07,880
environment now, where SDO is going to live for 5 or 10 years and

17
00:01:07,900 --> 00:01:11,930
we want to make sure that everything works as we designed it to work. So that's an

18
00:01:11,950 --> 00:01:16,110
intense, in SDO's case, two month phase of

19
00:01:16,130 --> 00:01:20,150
testing out all the aspects of the observatory and the instruments to make sure

20
00:01:20,170 --> 00:01:24,170
they work as designed. Dean: The testing phase, the commissioning phase,

21
00:01:24,190 --> 00:01:28,210
is extremely important to the science phase because that's how we

22
00:01:28,230 --> 00:01:32,250
understand how the instruments operate. We don't have to produce science data,

23
00:01:32,270 --> 00:01:36,260
but we do have to create an understanding of the instruments so we can

24
00:01:36,280 --> 00:01:40,280
produce better science data. Elizabeth: In the case of SDO, our commissioning

25
00:01:40,300 --> 00:01:44,340

phase was very smooth, so because we

26
00:01:44,360 --> 00:01:48,340
the engineering side, and the scientists, did our job so well during

27
00:01:48,360 --> 00:01:52,390
design, build and test, we had a smooth commissioning, and SDO

28
00:01:52,410 --> 00:01:56,570
is performing wonderfully.

29
00:01:56,590 --> 00:02:00,580
Dean: The project during build and launch has been controlled by

30
00:02:00,600 --> 00:02:04,690
Liz Citrin, our project manager, and she's had to worry about

31
00:02:04,710 --> 00:02:08,740
budget, and schedule, and making sure everything showed up on time.

32
00:02:08,760 --> 00:02:12,890
Building a satellite is like a big "just in time"

33
00:02:12,910 --> 00:02:16,900
assembly line. Where things are being put on the spacecraft

34
00:02:16,920 --> 00:02:20,920
and they have to be put on in a certain order and you want everything to show up at the right time

35
00:02:20,940 --> 00:02:25,090
to be put on the spacecraft. And they've done a great job; the engineers

36
00:02:25,110 --> 00:02:29,100
here at Goddard have done a marvelous job of getting the spacecraft assembled,

37
00:02:29,120 --> 00:02:33,140
tested and launched. And now it's time for some scientists to turn up

38
00:02:33,160 --> 00:02:36,220
and start running the spacecraft to take data.

39
00:02:36,240 --> 00:02:42,250
Music

40
00:02:42,270 --> 00:02:46,380
Elizabeth: The handover is when you're done

41
00:02:46,400 --> 00:02:50,390
building and testing your mission and you start

42
00:02:50,410 --> 00:02:54,430
the operational phase and the scientists start doing their thing and the

43
00:02:54,450 --> 00:02:58,470
engineers who built the observatory, who built the instruments, are really

44
00:02:58,490 --> 00:03:02,620
backing away and going on to other, to build

45
00:03:02,640 --> 00:03:06,650
other missions. Dean: Handover is a kind of a strange thing at NASA;

46
00:03:06,670 --> 00:03:10,710
we take it from one group and give it to another, but it does

47
00:03:10,730 --> 00:03:14,840
symbolize an end to some peoples participation in the project.

48
00:03:14,860 --> 00:03:18,910
Liz did a very nice job of working with her team and keeping the team

49
00:03:18,930 --> 00:03:22,950
excited about building this observatory. And I think that shows in

50
00:03:22,970 --> 00:03:27,170

the pride that people have taken in their work and how happy they are that we're

51
00:03:27,190 --> 00:03:31,360
getting good data back. Elizabeth: You know, it's the next

52
00:03:31,380 --> 00:03:35,410
phase in the life of SDO, and in my life

53
00:03:35,430 --> 00:03:39,610
too, because I'll move to the next thing, and in the engineers lives. You know it's just what we go

54
00:03:39,630 --> 00:03:43,660
through, but it's different than most people's careers because we have

55
00:03:43,680 --> 00:03:47,670
you know, a defined project, about five years, we know it's going to end, it ends

56
00:03:47,690 --> 00:03:51,700
then we move on. So it's, it's exciting but it's

57
00:03:51,720 --> 00:03:55,720
a little bit sad.

58
00:03:55,740 --> 00:03:59,810
It's your baby and you have to , you know,

59
00:03:59,830 --> 00:04:03,820
let it go; go do it's thing.