
COUNTDOWN
TO T-ZERO
ROCKET SCIENCE
GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE-R SERIES
GOES-S
NOAA ~ NASA

1
00:00:00,290 --> 00:00:02,270
Launch controller: ROC, report range status.

2
00:00:02,270 --> 00:00:03,270
Launch controller: Range green.

3
00:00:03,270 --> 00:00:08,640
Launch commentator: T-minus five, four, three,
two, one.

4
00:00:08,780 --> 00:00:10,760
Go for main engine start.

5
00:00:10,880 --> 00:00:13,420
Zero and liftoff.

6
00:00:18,780 --> 00:00:21,360
0-Dark Thirty at Cape Canaveral Air Force
Station.

7
00:00:21,360 --> 00:00:26,930
With a full week of intense rocket-assembly
activities ahead, the teams from Launch Services

8
00:00:26,930 --> 00:00:31,160
Program and United Launch Alliance are getting
an early start.

9
00:00:31,160 --> 00:00:33,700
It all begins with the booster.

10
00:00:33,700 --> 00:00:39,430
The booster is the backbone of the Atlas V,
and literally everything is riding on it.

11
00:00:39,430 --> 00:00:42,650
It’s the largest component and first to
be lifted.

12
00:00:42,650 --> 00:00:47,290
"Launch Services Program partnered with United
Launch Alliance to select the Atlas 541

13
00:00:47,290 --> 00:00:52,140
vehicle because it is one awesome rocket,
and we need that thrust to get GOES-S to its

14
00:00:52,140 --> 00:00:55,600
geostationary oribit to meet its mission requirements."

15
00:00:55,600 --> 00:01:00,070
But, it will take more than just the booster
to get all the way to geostationary orbit.

16
00:01:00,070 --> 00:01:04,100
That’s why we’re adding four solid rocket
boosters.

17
00:01:06,020 --> 00:01:10,640
"When you start with the Atlas booster it's
like 860,000 pounds of thrust with just the

18
00:01:10,650 --> 00:01:14,260
RD180, so we need the solids for extra performance.

19
00:01:14,260 --> 00:01:20,220
We need it to get heavy payloads off the pad
and for additional performance going to geosynchronous

20
00:01:20,220 --> 00:01:22,530
orbit or geotransfer.

21
00:01:22,530 --> 00:01:25,630
Mating the solids to the booster is a very
hazardous operation.

22
00:01:25,630 --> 00:01:27,840
We have safety with us at all times.

23
00:01:27,840 --> 00:01:31,890
You have a hundred thousand pounds going up
into the air and hanging on a crane, and oh

24
00:01:31,890 --> 00:01:33,869
by the way, it's explosive."

25
00:01:33,869 --> 00:01:38,010
Once the solids are mounted, it’s time to
mate the Centaur.

26
00:01:38,010 --> 00:01:44,770
"The Centaur is the upper stage, and it's
tuned, it's like a highly-tuned racecar.

27
00:01:44,770 --> 00:01:45,980
It's light.

28
00:01:46,160 --> 00:01:47,220
It's efficient.

29
00:01:47,220 --> 00:01:49,680
It performs well for us.

30
00:01:49,960 --> 00:01:57,400
You see something that's not right, bring
it up to us, give us a chance to fix it, okay?

31
00:01:57,410 --> 00:02:00,290
Alright, let's go do this thing."

32
00:02:00,290 --> 00:02:03,840
Assembling a rocket can make or break any
mission.

33
00:02:03,840 --> 00:02:08,430
It takes tremendous coordination and skill
to get this job done.

34
00:02:08,430 --> 00:02:12,090
The team makes it look easy, but rocket science never is.

35
00:02:12,090 --> 00:02:16,829
"The coolest part of my job is coming down here and seeing the hardware and knowing

36
00:02:16,829 --> 00:02:18,190
what it's capable of.

37
00:02:18,190 --> 00:02:21,909
We all get to work with rockets, and it's really exciting and fun, and everybody has

38
00:02:21,909 --> 00:02:26,950
their part in all of that and yeah, when you're out with friends you can say you're a rocket

39
00:02:26,950 --> 00:02:27,950
scientist.

40
00:02:27,950 --> 00:02:28,950
I do."

41
00:02:28,950 --> 00:02:34,709
"So there's really nothing quite like all the work and all set up that we do to get

42
00:02:34,709 --> 00:02:40,480
ready to do this and get built up a rocket, and test it to get to launch day.

43
00:02:40,480 --> 00:02:44,700
And we get to T-Zero and the rocket lifts off, and the control room rattles and shakes

44
00:02:44,700 --> 00:02:47,250

a little bit, it's an awesome feeling.

45
00:02:47,250 --> 00:02:51,879
That is the ultimate reward and that's really
what makes us happy. What makes our customer

46
00:02:51,879 --> 00:02:58,379
happy is putting our customer where they want
to go, in the right spot, in the exact right

47
00:02:58,379 --> 00:03:05,780
orbit, and that is - there's a lot of pride
in that."

48
00:03:05,780 --> 00:03:07,859
This rocket is almost ready to roll.