1
00:00:10,090 --> 00:00:08,980
I'm Ron Kings deceleration subsystem

2
00:00:13,580 --> 00:00:10,100
manager here at the Marshall Space

3
00:00:15,830 --> 00:00:13,590
Flight Center today we're going to be

4
00:00:19,430 --> 00:00:15,840
we conduct parachute development tests

5
00:00:22,880 --> 00:00:19,440
for a large multi stage deceleration

6
00:00:26,089 --> 00:00:22,890
systems used in returning solid rocket

7
00:00:28,160 --> 00:00:26,099
motors back to a safe splashdown and

8
00:00:30,350 --> 00:00:28,170
recovery in the atlantic ocean and i'm

9
00:00:32,150 --> 00:00:30,360
jeremy myers a systems engineer here at

10
00:00:34,760 --> 00:00:32,160
Marshall Space Flight Center in the

11
00:00:36,439 --> 00:00:34,770
optics and imaging branch the video that

12
00:00:38,990 --> 00:00:36,449
you're looking at was captured with the

13
00:00:40,640 --> 00:00:39,000

high-speed parachute camera this camera

14
00:00:43,520 --> 00:00:40,650
with can can withstand the extreme

15
00:00:46,340 --> 00:00:43,530
environments of a launch vehicle the

16
00:00:49,610 --> 00:00:46,350
launch process the separation event

17
00:00:52,040 --> 00:00:49,620
along with splashdown now this camera is

18
00:00:54,229 --> 00:00:52,050
different than a standard camera because

19
00:00:56,990 --> 00:00:54,239
it can capture video up to 1200 frames

20
00:01:00,650 --> 00:00:57,000
per second versus a normal camera at 30

21
00:01:03,760 --> 00:01:00,660
frames per second and the data is about

22
00:01:07,609 --> 00:01:03,770
four times the quality of standard video

23
00:01:10,639 --> 00:01:07,619
we're conducting our our three main

24
00:01:12,740 --> 00:01:10,649
cluster tests today and we're using our

25
00:01:15,290 --> 00:01:12,750
drogue as a programmer shoot to set the

26
00:01:17,719 --> 00:01:15,300
stage for the proper time to deploy the

27
00:01:19,490 --> 00:01:17,729
mains right now you're going to see the

28
00:01:22,010 --> 00:01:19,500
the main packs are released from our

29
00:01:24,980 --> 00:01:22,020
drop vehicle the three mains are being

30
00:01:26,990 --> 00:01:24,990
deployed and as they already being

31
00:01:28,790 --> 00:01:27,000
deployed Jeremy wants you to describe

32
00:01:29,930 --> 00:01:28,800
how your high-speed camera is working

33
00:01:33,499 --> 00:01:29,940
and why we're using your high-speed

34
00:01:35,540 --> 00:01:33,509
camera on this on this test oh the video

35
00:01:39,230 --> 00:01:35,550
that you're looking at is captured at a

36
00:01:43,070 --> 00:01:39,240
high frame rate with 300 frames per

37
00:01:44,809 --> 00:01:43,080
second so to the person looking at it

38
00:01:47,809 --> 00:01:44,819

would never be able to see the details

39
00:01:49,730 --> 00:01:47,819
that we're seeing here but as you see we

40
00:01:53,660 --> 00:01:49,740
just did a transition in speed and this

41
00:01:56,389 --> 00:01:53,670
allows us to save memory space for the

42
00:01:57,979 --> 00:01:56,399
high-speed events there we've changed to

43
00:01:59,930 --> 00:01:57,989
a hundred frames per second and then

44
00:02:02,389 --> 00:01:59,940
when it gets really fast as you see

45
00:02:04,460 --> 00:02:02,399
there it's at 30 frames per second and

46
00:02:06,589 --> 00:02:04,470
that's very good because now we can see

47
00:02:08,660 --> 00:02:06,599
real time as the shoots are actually

48
00:02:12,020 --> 00:02:08,670
inflating they're at the first reef

49
00:02:15,589 --> 00:02:12,030
stage we control the we balance the

50
00:02:17,330 --> 00:02:15,599
loads by by briefing the parachutes they

51
00:02:21,110 --> 00:02:17,340
open in three stages with these mains

52
00:02:24,319 --> 00:02:21,120
and now you're seeing them open up to

53
00:02:25,940 --> 00:02:24,329
the second stage and again I think now

54
00:02:27,230 --> 00:02:25,950
your camera slowed down again Jeremy

55
00:02:29,590 --> 00:02:27,240
tell us why

56
00:02:31,760 --> 00:02:29,600
well by slowing down we can make that

57
00:02:34,430 --> 00:02:31,770
transition to different frame rates up

58
00:02:38,360 --> 00:02:34,440
to four times so you just have so much

59
00:02:41,980 --> 00:02:38,370
storage space and here we see an event

60
00:02:44,720 --> 00:02:41,990
that is not very dynamic in other words

61
00:02:49,070 --> 00:02:44,730
the events are very stagnant so you

62
00:02:51,110 --> 00:02:49,080
don't need that high frame rate the

63
00:02:52,550 --> 00:02:51,120

other benefit to us as a parachute

64
00:02:53,960 --> 00:02:52,560
community is that with the high speed

65
00:02:56,300 --> 00:02:53,970
camera when we go back in and evaluate

66
00:02:58,820 --> 00:02:56,310
performance of the shoots with the high

67
00:03:00,890 --> 00:02:58,830
frame rate we look frame by frame we can

68
00:03:03,950 --> 00:03:00,900
really get the detail of what's

69
00:03:06,020 --> 00:03:03,960
happening as this shoots deploy as they

70
00:03:08,390 --> 00:03:06,030
inflate and then as you're seeing now as

71
00:03:10,460 --> 00:03:08,400
they go through the reefing stages now

72
00:03:13,190 --> 00:03:10,470
we're going to a full open which is a

73
00:03:14,840 --> 00:03:13,200
hundred percent utilization of the full

74
00:03:17,150 --> 00:03:14,850
canopy and I should mention that these

75
00:03:21,200 --> 00:03:17,160
canopies full open or 150 foot in

76
00:03:23,450 --> 00:03:21,210
diameter each the largest reentry

77
00:03:26,600 --> 00:03:23,460
booster rocket parachutes ever developed