1
00:00:18,050 --> 00:00:13,539
today is the 26th of April Thursday

2
00:00:20,420 --> 00:00:18,060
March rather March 26th and next week

3
00:00:22,189 --> 00:00:20,430
starting the 30th of March and through

4
00:00:25,310 --> 00:00:22,199
the first week of April we are doing

5
00:00:27,290 --> 00:00:25,320
some parachute tests up at Ames at the

6
00:00:29,300 --> 00:00:27,300
full-scale wind tunnel up there and

7
00:00:32,179 --> 00:00:29,310
we're doing our final campaign of

8
00:00:45,889 --> 00:00:32,189
parachute tests for the qualification of

9
00:00:49,639 --> 00:00:47,720
when the MSL spacecraft hits the

10
00:00:52,160 --> 00:00:49,649
atmosphere is going very fast

11
00:00:54,560 --> 00:00:52,170
fortunately the heat shield through

12
00:00:55,880 --> 00:00:54,570
friction with the atmosphere absorbs 98

13
00:00:58,160 --> 00:00:55,890

percent of all of that energy so we

14
00:01:00,439 --> 00:00:58,170
start off at 17,000 miles an hour then

15
00:01:02,630 --> 00:01:00,449
we can slow down to about 2,000 miles

16
00:01:07,510 --> 00:01:02,640
per hour that's the point where we have

17
00:01:11,149 --> 00:01:07,520
to open up the parachute tom is on Mars

18
00:01:12,889 --> 00:01:11,159
the atmosphere so thin that even at a

19
00:01:15,109 --> 00:01:12,899
thousand miles per hour we're not

20
00:01:18,770 --> 00:01:15,119
generating that much force so we need a

21
00:01:20,510 --> 00:01:18,780
really really really big parachute one

22
00:01:23,330 --> 00:01:20,520
of the most difficult things to do is to

23
00:01:24,820 --> 00:01:23,340
test the strength of the parachute the

24
00:01:27,320 --> 00:01:24,830
only way to do that is to actually

25
00:01:30,290 --> 00:01:27,330
inflate it either you drop from the

26
00:01:31,880 --> 00:01:30,300
helicopter or you put in a twin time we

27
00:01:33,620 --> 00:01:31,890
try dropping it from the helicopter but

28
00:01:36,440 --> 00:01:33,630
we were so big and it was just it was

29
00:01:38,120 --> 00:01:36,450
not a very elegant test so we abandon

30
00:01:39,919 --> 00:01:38,130
that we decided to go into the wind

31
00:01:41,300 --> 00:01:39,929
tunnel well we had to go to the world's

32
00:01:44,630 --> 00:01:41,310
largest wind tunnel in order to

33
00:01:46,790 --> 00:01:44,640
accommodate this big parachute the test

34
00:01:49,520 --> 00:01:46,800
section in his wind tunnel is 120 feet

35
00:01:51,070 --> 00:01:49,530
wide 80 feet high it's absolutely

36
00:01:52,900 --> 00:01:51,080
enormous

37
00:01:56,890 --> 00:01:52,910
so sounds pretty straightforward sells

38
00:02:26,290 --> 00:01:56,900

pretty easy but parachute testing is

39
00:02:29,920 --> 00:02:26,300
never without its surprise yeah wasn't

40
00:02:32,050 --> 00:02:29,930
sure what happened so when we got up

41
00:02:34,000 --> 00:02:32,060
there we built we built a few ruinous

42
00:02:35,920 --> 00:02:34,010
chutes we brought him up to the to a

43
00:02:39,730 --> 00:02:35,930
wind tunnel and we started testing them

44
00:02:42,610 --> 00:02:39,740
and sure enough we got what's called an

45
00:02:47,440 --> 00:02:42,620
inversion the parachute opened up inside

46
00:02:51,550 --> 00:02:47,450
out the parachute blue part basically so

47
00:03:04,330 --> 00:02:51,560
tunnels fine but the parachute is it's a

48
00:03:07,000 --> 00:03:04,340
loss not to see when we get when we do

49
00:03:08,729 --> 00:03:07,010
our full-scale analysis with definitely

50
00:03:12,070 --> 00:03:08,739
failed on that one side first

51
00:03:14,350 --> 00:03:12,080
once it filled in one place it was it

52
00:03:21,970 --> 00:03:14,360
was done lose it one place to lose the

53
00:03:23,680 --> 00:03:21,980
whole thing so we called it quits for

54
00:03:25,330 --> 00:03:23,690
that first test program and we convene

55
00:03:27,400 --> 00:03:25,340
and we're scratching our heads we

56
00:03:30,040 --> 00:03:27,410
assembled all the experts we had a

57
00:03:33,580 --> 00:03:30,050
workshop and the problem is we didn't

58
00:03:35,320 --> 00:03:33,590
have enough data to figure out what was

59
00:03:38,620 --> 00:03:35,330
happening we didn't have enough cameras

60
00:03:40,390 --> 00:03:38,630
in there so we ran that went on with as

61
00:03:42,820 --> 00:03:40,400
many cameras that we could get with high

62
00:03:44,710 --> 00:03:42,830
def cameras we had 35 millimeter cameras

63
00:03:49,060 --> 00:03:44,720

we had three or four different

64
00:03:51,190 --> 00:03:49,070
high-speed cameras it was just the most

65
00:03:54,920 --> 00:03:51,200
photographs that a parachute inflation

66
00:04:00,550 --> 00:03:54,930
test any of us had ever seen

67
00:04:05,569 --> 00:04:00,560
oh you just drilled that it's perfect

68
00:04:08,990 --> 00:04:05,579
perfect they're both perfect still a

69
00:04:14,649 --> 00:04:09,000
blur that is awesome especially got them

70
00:04:20,870 --> 00:04:18,740
that footage is awesome that doesn't

71
00:04:22,190 --> 00:04:20,880
exist anywhere else in the world any

72
00:04:25,640 --> 00:04:22,200
parachute

73
00:04:28,430 --> 00:04:25,650
I kid you not we have no idea we have no

74
00:04:29,960 --> 00:04:28,440
idea we have no idea if they all look

75
00:04:31,310 --> 00:04:29,970
like that or if none of them look like

76
00:04:42,900 --> 00:04:31,320
that because we've got nothing to base

77
00:04:47,710 --> 00:04:45,400
you know every time I have one of these

78
00:04:49,540 --> 00:04:47,720
tests even though you've done them again

79
00:04:51,430 --> 00:04:49,550
and again you know there's always that

80
00:04:53,830 --> 00:04:51,440
pressure that you have to have to

81
00:04:56,500 --> 00:04:53,840
perform because the visual data the

82
00:04:57,970 --> 00:04:56,510
high-speed video was really some of the

83
00:04:58,990 --> 00:04:57,980
most important data that was being

84
00:05:02,640 --> 00:04:59,000
collected

85
00:05:06,870 --> 00:05:02,650
you can't put instrumentation on parish

86
00:05:08,460 --> 00:05:06,880
so the only the only thing to record

87
00:05:11,070 --> 00:05:08,470
that the parachute really was the

88
00:05:13,950 --> 00:05:11,080

high-speed video and the responsibility

89
00:05:17,070 --> 00:05:13,960
for that was on the photographers yeah