



1  
00:00:46,890 --> 00:00:53,020  
that's it that's a long day

2  
00:00:57,670 --> 00:00:55,630  
hours about three hours of sleep in

3  
00:01:00,250 --> 00:00:57,680  
there somewhere half of it on a bus half

4  
00:01:15,810 --> 00:01:00,260  
put on the plane

5  
00:01:20,770 --> 00:01:18,249  
as we led up to that whole operation we

6  
00:01:22,149 --> 00:01:20,780  
had a huge set of work ahead of us

7  
00:01:24,550 --> 00:01:22,159  
stowing the rover and getting it ready

8  
00:01:27,639 --> 00:01:24,560  
for shipment meant a lot of shifts in a

9  
00:01:32,380 --> 00:01:27,649  
row a lot of complex operations with the

10  
00:01:34,300 --> 00:01:32,390  
vehicle and you have to remind yourself

11  
00:01:35,710 --> 00:01:34,310  
every time you pick that Rover up it's

12  
00:01:37,840 --> 00:01:35,720  
almost a billion dollars worth of

13  
00:01:39,340 --> 00:01:37,850

hardware that that you're watching out

14

00:01:42,010 --> 00:01:39,350

for every time you do something with it

15

00:01:43,990 --> 00:01:42,020

so that that part got to be really white

16

00:01:45,789 --> 00:01:44,000

knuckles for us it makes us a little

17

00:01:48,219 --> 00:01:45,799

nervous sometimes I mean you worry about

18

00:01:50,109 --> 00:01:48,229

the environment it's it's on a forklift

19

00:01:52,450 --> 00:01:50,119

it gets put on the on the back of a

20

00:01:54,520 --> 00:01:52,460

flatbed truck and then run down the

21

00:01:57,639 --> 00:01:54,530

highway to March Air Force Base from JPL

22

00:01:59,680 --> 00:01:57,649

and that whole transport is is just like

23

00:02:01,090 --> 00:01:59,690

you're you're driving any other any

24

00:02:03,850 --> 00:02:01,100

other truck down the highway so it's

25

00:02:06,010 --> 00:02:03,860

it's full of pumps and it takes lumps

26

00:02:12,449 --> 00:02:06,020

and and so it's it's one of those that

27

00:02:16,319 --> 00:02:14,550

it's a very impressive operation to get

28

00:02:18,330 --> 00:02:16,329

the shipping containers up into the

29

00:02:21,479 --> 00:02:18,340

aircraft these boxes are incredibly

30

00:02:24,569 --> 00:02:21,489

large and and even as big as as big an

31

00:02:34,780 --> 00:02:24,579

aircraft as the c-17 is it is barely big

32

00:02:38,920 --> 00:02:36,130

there's an entire team of Air Force

33

00:02:41,350 --> 00:02:38,930

reservists who help us load this led by

34

00:02:43,420 --> 00:02:41,360

the Load Master who was in charge of the

35

00:02:45,130 --> 00:02:43,430

lynching operation basically they use

36

00:02:47,500 --> 00:02:45,140

the aircraft cable system a hydraulic

37

00:02:53,400 --> 00:02:47,510

winch to hook up to the container and

38

00:02:59,020 --> 00:02:57,040

as that happens you have a team of about

39

00:03:00,430 --> 00:02:59,030

eight other Air Force crew members plus

40

00:03:02,770 --> 00:03:00,440

all of the payload crew members all of

41

00:03:04,630 --> 00:03:02,780

the MSL crew members that we had with us

42

00:03:06,760 --> 00:03:04,640

watching all of the corners making sure

43

00:03:08,320 --> 00:03:06,770

that that everything was clearing and

44

00:03:09,730 --> 00:03:08,330

that the measurements were right and

45

00:03:11,680 --> 00:03:09,740

that we weren't going to run into a

46

00:03:14,800 --> 00:03:11,690

problem as the if the shipping container

47

00:03:16,720 --> 00:03:14,810

got off line for any reason

48

00:03:18,640 --> 00:03:16,730

even despite the best planning we can

49

00:03:20,500 --> 00:03:18,650

find ourselves in a spot where we still

50

00:03:22,240 --> 00:03:20,510

have to solve some of the problems we

51  
00:03:24,520 --> 00:03:22,250  
need thick plywood to reduce the contact

52  
00:03:25,780 --> 00:03:24,530  
pressure on the wheels the shipping

53  
00:03:27,580 --> 00:03:25,790  
container you have this this thing which

54  
00:03:29,230 --> 00:03:27,590  
weighs you know 10,000 pounds or more

55  
00:03:31,600 --> 00:03:29,240  
and you have to be make sure you don't

56  
00:03:36,100 --> 00:03:31,610  
punch a hole in the aircraft floor so we

57  
00:03:37,420 --> 00:03:36,110  
had to get thicker plywood we had to

58  
00:03:38,740 --> 00:03:37,430  
make emergency calls out here at a

59  
00:03:40,300 --> 00:03:38,750  
Kennedy Space Center to make sure that

60  
00:03:41,890 --> 00:03:40,310  
enough plywood was on hand when we

61  
00:03:44,410 --> 00:03:41,900  
landed so that we would actually have

62  
00:04:05,520 --> 00:03:44,420  
that same accommodation on the way off

63  
00:04:11,020 --> 00:04:07,870

all of those operations had to be undone

64

00:04:13,660 --> 00:04:11,030

once we got down to the ground here at

65

00:04:15,910 --> 00:04:13,670

KSC and so the operations on the tarmac

66

00:04:18,849 --> 00:04:15,920

including the offloading of the shipping

67

00:04:21,430 --> 00:04:18,859

containers had to be done just in the

68

00:04:24,760 --> 00:04:21,440

same way the same crew then after the

69

00:04:26,830 --> 00:04:24,770

five hour flight stepped up and had to

70

00:04:28,630 --> 00:04:26,840

check all of those clearances again make

71

00:04:30,070 --> 00:04:28,640

sure all of the rigging was was out of

72

00:04:32,740 --> 00:04:30,080

the way and that the winch system was

73

00:04:34,870 --> 00:04:32,750

ready to help lower the the shipping

74

00:04:36,580 --> 00:04:34,880

containers down the ramp even wanted to

75

00:04:38,080 --> 00:04:36,590

get the shipping container to get away

76

00:04:40,770 --> 00:04:38,090

from you and roll out onto the tarmac

77

00:04:43,360 --> 00:04:40,780

you know he'd get get out of control so

78

00:04:45,460 --> 00:04:43,370

but they did a really nice careful job

79

00:04:47,320 --> 00:04:45,470

and again we had all of the same crew

80

00:04:49,630 --> 00:04:47,330

that were there at March Air Force Base

81

00:04:51,190 --> 00:04:49,640

here at KSC plus our arrival crews we

82

00:04:53,409 --> 00:04:51,200

had a fresh crew of folks who are

83

00:04:55,090 --> 00:04:53,419

well-rested to be able to take care of a

84

00:04:56,920 --> 00:04:55,100

lot of the ground operations once we

85

00:04:59,640 --> 00:04:56,930

arrived here so that those of us who had

86

00:05:03,460 --> 00:04:59,650

been going for almost 48 hours straight

87

00:05:05,890 --> 00:05:03,470

didn't have to also finish out that part

88

00:05:08,680 --> 00:05:05,900

of the job we're about to send our baby

89

00:05:10,480 --> 00:05:08,690

on a very long journey to go spend its

90

00:05:13,480 --> 00:05:10,490

life exploring the surface of Mars

91

00:05:15,280 --> 00:05:13,490

that's that's it's a big leap of faith

92

00:05:17,020 --> 00:05:15,290

to be able to hand off the vehicle they

93

00:05:18,820 --> 00:05:17,030

have a great team on the launch vehicle

94

00:05:22,030 --> 00:05:18,830

side and they're there ready to take