



1  
00:00:11,110 --> 00:00:09,910  
okay so with that i showed the assembly

2  
00:00:14,150 --> 00:00:11,120  
complete

3  
00:00:23,429 --> 00:00:14,160  
and we're back on the timeline and

4  
00:00:30,310 --> 00:00:26,390  
and that is fantastic news thanks stan

5  
00:00:35,190 --> 00:00:33,110  
and for everybody watching um this is

6  
00:00:36,950 --> 00:00:35,200  
the first humanoid robot we've had um

7  
00:00:38,790 --> 00:00:36,960  
aboard the international space station

8  
00:00:42,229 --> 00:00:38,800  
in space i guess uh

9  
00:00:45,029 --> 00:00:42,239  
as well first one we've ever had and

10  
00:00:47,750 --> 00:00:45,039  
it's a robonaut or r2

11  
00:00:49,670 --> 00:00:47,760  
and it's specifically designed to uh to

12  
00:00:51,270 --> 00:00:49,680  
have all the same kinds of

13  
00:00:52,950 --> 00:00:51,280

interfaces or to be able to operate with

14

00:00:55,189 --> 00:00:52,960

all the interfaces that humans would use

15

00:00:58,069 --> 00:00:55,199

onboard space station and in the near

16

00:01:01,029 --> 00:00:58,079

term we've got lots of

17

00:01:03,029 --> 00:01:01,039

checkout operations to make sure that

18

00:01:05,270 --> 00:01:03,039

everything is functioning and all the

19

00:01:07,670 --> 00:01:05,280

systems are good very sophisticated

20

00:01:10,630 --> 00:01:07,680

fully articulated many many degrees of

21

00:01:13,750 --> 00:01:10,640

freedom and the the fingers the hands

22

00:01:15,510 --> 00:01:13,760

the elbows wrists shoulders waist

23

00:01:16,310 --> 00:01:15,520

head and neck as well

24

00:01:17,670 --> 00:01:16,320

and

25

00:01:20,630 --> 00:01:17,680

allows a lot of different ways to

26  
00:01:22,070 --> 00:01:20,640  
command at this stage right now and most

27  
00:01:24,710 --> 00:01:22,080  
of the commanding we do right now is

28  
00:01:26,950 --> 00:01:24,720  
through automated scripts using us a

29  
00:01:28,710 --> 00:01:26,960  
dedicated program to do it down the road

30  
00:01:31,350 --> 00:01:28,720  
we'll be able to command it via virtual

31  
00:01:33,429 --> 00:01:31,360  
reality and and i suppose down the road

32  
00:01:34,630 --> 00:01:33,439  
as well there'll be some capability to

33  
00:01:35,670 --> 00:01:34,640  
do some uh

34  
00:01:38,710 --> 00:01:35,680  
some

35  
00:01:41,270 --> 00:01:38,720  
artificial intelligence type

36  
00:01:42,630 --> 00:01:41,280  
operations with it where it would have

37  
00:01:45,429 --> 00:01:42,640  
the uh

38  
00:01:47,910 --> 00:01:45,439

the computing capacity on board to to

39

00:01:50,870 --> 00:01:47,920

basically operate in a more or less for

40

00:01:53,030 --> 00:01:50,880

a more semi-autonomous mode

41

00:01:54,789 --> 00:01:53,040

the kinds of things we think about using

42

00:01:55,910 --> 00:01:54,799

robonaut 4 is to basically offload the

43

00:01:58,069 --> 00:01:55,920

cruise from doing some of the more

44

00:01:59,510 --> 00:01:58,079

routine tasks on space station we've got

45

00:02:01,109 --> 00:01:59,520

a crew of six up here and most of the

46

00:02:03,830 --> 00:02:01,119

time everybody's really really busy

47

00:02:06,230 --> 00:02:03,840

doing all the science that we do and uh

48

00:02:08,309 --> 00:02:06,240

having a seventh crew member to add to

49

00:02:10,070 --> 00:02:08,319

the complement of six is a wonderful

50

00:02:12,229 --> 00:02:10,080

thing

51  
00:02:15,990 --> 00:02:12,239  
and ultimately i think also it would be

52  
00:02:17,910 --> 00:02:16,000  
a fantastic uh tool to have as an

53  
00:02:19,510 --> 00:02:17,920  
additional eva crew member spacewalk and

54  
00:02:20,550 --> 00:02:19,520  
crew member outside

55  
00:02:22,309 --> 00:02:20,560  
and

56  
00:02:24,710 --> 00:02:22,319  
again we've got a lot of work in the

57  
00:02:26,630 --> 00:02:24,720  
near term for uh from a technologic you

58  
00:02:28,470 --> 00:02:26,640  
know from a technology demonstration

59  
00:03:52,550 --> 00:02:28,480  
standpoint to get there but this is a

60  
00:04:02,470 --> 00:03:54,470  
and dan we are setting up for the next

61  
00:04:02,480 --> 00:04:34,710  
okay copy that

62  
00:04:39,590 --> 00:04:37,189  
and then this is huntsville we are ready

63  
00:04:41,189 --> 00:04:39,600

for you to proceed to step 12

64

00:04:47,990 --> 00:04:41,199

and once you're ready we'll start with

65

00:04:48,000 --> 00:04:53,510

age 12 is complete ready for 13.

66

00:04:53,520 --> 00:06:08,070

and we copy

67

00:06:19,029 --> 00:06:10,150

okay step 13

68

00:06:19,039 --> 00:06:37,909

and we copy and concur

69

00:06:41,510 --> 00:06:39,510

there is a handshake coming up in

70

00:06:42,790 --> 00:06:41,520

between burbank and robonauts we're

71

00:06:55,670 --> 00:06:42,800

hoping to get it while we're still on

72

00:07:01,270 --> 00:06:58,390

station huntsville on space to ground

73

00:07:04,550 --> 00:07:01,280

one for dan and robonaut

74

00:07:10,309 --> 00:07:04,560

we are a go to proceed with step four

75

00:07:13,430 --> 00:07:12,150

here's four decimal three

76

00:07:15,029 --> 00:07:13,440

and

77

00:07:16,390 --> 00:07:15,039

you're ready as soon as i with four

78

00:07:17,909 --> 00:07:16,400

decimal three

79

00:07:20,469 --> 00:07:17,919

complete and standing by on that you're

80

00:07:22,309 --> 00:07:20,479

ready for four decimal form

81

00:07:26,950 --> 00:07:22,319

that is a firm you are a go to proceed

82

00:07:30,390 --> 00:07:29,510

okay very good the first human humanoid

83

00:07:55,990 --> 00:07:30,400

handshake

84

00:07:59,670 --> 00:07:58,070

so man meets machine aboard the

85

00:08:01,589 --> 00:07:59,680

international space station as

86

00:08:03,029 --> 00:08:01,599

expedition 30 commander dan burbank

87

00:08:17,189 --> 00:08:03,039

reaches out and shakes the hand of

88

00:08:22,150 --> 00:08:20,150

so the record was a firm handshake

89

00:08:24,790 --> 00:08:22,160

very nice nice job on the programming

90

00:08:26,790 --> 00:08:24,800

and uh and all the engineering

91

00:08:34,149 --> 00:08:26,800

quite an impressive quite an impressive