1
00:00:19,579 --> 00:00:18,079
I bill hubscher and I'm Lori Meggs and

2
00:00:21,800 --> 00:00:19,589
welcome to focus on Marshall we've come

3
00:00:24,019 --> 00:00:21,810
to snowy promontory Utah we're at the

4
00:00:25,489 --> 00:00:24,029
ATK facilities for the final reusable

5
00:00:27,259 --> 00:00:25,499
solid rocket motor test they've been

6
00:00:29,059 --> 00:00:27,269
testing them here for more than 30 years

7
00:00:30,649 --> 00:00:29,069
a historical event to say the least

8
00:00:36,979 --> 00:00:30,659
let's meet some of the team who are

9
00:00:39,049 --> 00:00:36,989
making this happen we're at the ATK test

10
00:00:41,119 --> 00:00:39,059
and standing high above the reusable

11
00:00:42,979 --> 00:00:41,129
solid rocket motor ready for its final

12
00:00:45,200 --> 00:00:42,989
test and joining me now is david liman

13
00:00:47,060 --> 00:00:45,210

he is the reusable solid rocket booster

14
00:00:48,860 --> 00:00:47,070
project manager at marshall and david

15
00:00:50,389 --> 00:00:48,870
first of all let's remind folks what

16
00:00:53,090 --> 00:00:50,399
this motor does for the space shuttle

17
00:00:54,619 --> 00:00:53,100
okay our solid rocket motors provide the

18
00:00:56,139 --> 00:00:54,629
primary thrust during the first two

19
00:00:58,189 --> 00:00:56,149
minutes of a cent of the space shuttle

20
00:01:01,009 --> 00:00:58,199
it's very important that you're able to

21
00:01:03,139 --> 00:01:01,019
get off the launch pad thrust up towards

22
00:01:05,270 --> 00:01:03,149
second stage and then separate the the

23
00:01:07,460 --> 00:01:05,280
motors and they're parachuted back to

24
00:01:09,740 --> 00:01:07,470
the ocean which allows us to retrieve

25
00:01:12,499 --> 00:01:09,750
them and reuse them and it's been a very

26
00:01:14,210 --> 00:01:12,509
successful project and program tell us

27
00:01:16,069 --> 00:01:14,220
about the partnership with 80k the

28
00:01:17,959 --> 00:01:16,079
partnership has been unbelievable we've

29
00:01:19,670 --> 00:01:17,969
been fortunate to have the the brightest

30
00:01:22,310 --> 00:01:19,680
minds in solid rocket motor industry

31
00:01:24,469 --> 00:01:22,320
both on the NASA and contractor side and

32
00:01:26,240 --> 00:01:24,479
over the last 33 years and not only have

33
00:01:27,980 --> 00:01:26,250
we had a lot of full-scale testing out

34
00:01:29,510 --> 00:01:27,990
here but we had a lot of subscale

35
00:01:31,340 --> 00:01:29,520
testing that allows us to develop

36
00:01:33,529 --> 00:01:31,350
materials that we utilize in this mode

37
00:01:36,440 --> 00:01:33,539
and I think bills with one of those ATK

38
00:01:38,179 --> 00:01:36,450

folks now thanks David we're outside the

39
00:01:39,679 --> 00:01:38,189
block house which houses the control

40
00:01:41,240 --> 00:01:39,689
room and about half a mile from the

41
00:01:44,060 --> 00:01:41,250
tests and the talk to Harry Reid he is

42
00:01:46,099 --> 00:01:44,070
the ATK program manager for the reusable

43
00:01:48,740 --> 00:01:46,109
solid rocket motor and Harry outside in

44
00:01:50,120 --> 00:01:48,750
the elements today but I how long you've

45
00:01:51,620 --> 00:01:50,130
got quite a bit of history here with the

46
00:01:53,810 --> 00:01:51,630
with the solid rocket motor I've been

47
00:01:55,550 --> 00:01:53,820
working on this project for 26 years so

48
00:01:57,889 --> 00:01:55,560
you've seen seen it all I guess well

49
00:01:59,300 --> 00:01:57,899
quite a bit so well in that case tell us

50
00:02:01,550 --> 00:01:59,310
what we're going to see on when we

51
00:02:02,990 --> 00:02:01,560
actually fire off that test well we've

52
00:02:04,880 --> 00:02:03,000
gone through a series of dry runs

53
00:02:07,399 --> 00:02:04,890
getting ready for today a lot of reviews

54
00:02:09,380 --> 00:02:07,409
will be down at the road probably at the

55
00:02:13,220 --> 00:02:09,390
viewing site looking up towards the test

56
00:02:13,880 --> 00:02:13,230
stand and you'll see a bright flame come

57
00:02:16,640 --> 00:02:13,890
out of the motor

58
00:02:19,100 --> 00:02:16,650
then a couple of seconds later you'll at

59
00:02:20,780 --> 00:02:19,110
you'll start hearing the sound of the

60
00:02:22,550 --> 00:02:20,790
test firing and if you pay a real good

61
00:02:24,140 --> 00:02:22,560
attention you'll actually feel it in

62
00:02:26,270 --> 00:02:24,150
your feet about the same time you start

63
00:02:28,520 --> 00:02:26,280

hearing it it's quite impressive how far

64
00:02:29,990 --> 00:02:28,530
away do people usually you can feel and

65
00:02:31,520 --> 00:02:30,000
tell the digit tests going on up here oh

66
00:02:33,560 --> 00:02:31,530
they can tell the tests they're over

67
00:02:35,960 --> 00:02:33,570
into Tremont and neighboring neighboring

68
00:02:38,900 --> 00:02:35,970
town about 20 miles away they can tell

69
00:02:41,120 --> 00:02:38,910
ya and depending on the the conditions

70
00:02:42,760 --> 00:02:41,130
the plume of dust that comes up off the

71
00:02:44,630 --> 00:02:42,770
ground can be visible for quite a ways

72
00:02:46,100 --> 00:02:44,640
so what kind of things are you going to

73
00:02:49,370 --> 00:02:46,110
be looking for what kind of results you

74
00:02:51,920 --> 00:02:49,380
hoping to get from the test well the the

75
00:02:54,020 --> 00:02:51,930
fsm test fire program is designed to be

76
00:02:56,570 --> 00:02:54,030
a quality assurance check on our product

77
00:02:57,920 --> 00:02:56,580
we do them periodically so we're testing

78
00:03:00,050 --> 00:02:57,930
the performance of the materials

79
00:03:01,970 --> 00:03:00,060
components and processes that went into

80
00:03:04,490 --> 00:03:01,980
building this motor on this particular

81
00:03:06,920 --> 00:03:04,500
motor well on every motor that we do we

82
00:03:08,990 --> 00:03:06,930
also qualify various changes that we're

83
00:03:10,850 --> 00:03:09,000
taking place in the program obviously

84
00:03:13,070 --> 00:03:10,860
since we're so late in the program we

85
00:03:14,420 --> 00:03:13,080
have very few changes at this point we

86
00:03:15,860 --> 00:03:14,430
do have a couple of materials that have

87
00:03:18,920 --> 00:03:15,870
been to become obsolete they're going to

88
00:03:21,380 --> 00:03:18,930

become be flying on the next to the last

89
00:03:22,940 --> 00:03:21,390
firing that we have next to last shuttle

90
00:03:25,280 --> 00:03:22,950
mission will be testing those also on

91
00:03:26,660 --> 00:03:25,290
this motor so we do these tests

92
00:03:29,240 --> 00:03:26,670
obviously for quality control but you

93
00:03:30,259 --> 00:03:29,250
also test for for new things that are

94
00:03:31,460 --> 00:03:30,269
going to be on there for four new

95
00:03:33,650 --> 00:03:31,470
developments that you might literally

96
00:03:35,479 --> 00:03:33,660
any any change that we make on our SRM

97
00:03:37,880 --> 00:03:35,489
we test on solid rocket motor test

98
00:03:39,229 --> 00:03:37,890
firing before we fly it's a protocol

99
00:03:41,000 --> 00:03:39,239
that we have on the program to test

100
00:03:41,960 --> 00:03:41,010
before we fly all right arrey well

101
00:03:45,970 --> 00:03:41,970
thanks very much I'll let you get back

102
00:03:50,030 --> 00:03:48,260
I'm here now with Kent Rominger and he

103
00:03:52,370 --> 00:03:50,040
is the vice president for the test and

104
00:03:54,410 --> 00:03:52,380
research operations here at ATK and Kent

105
00:03:56,210 --> 00:03:54,420
we are at I guess you'd say the business

106
00:03:57,650 --> 00:03:56,220
end of this motor tell us what we're

107
00:03:59,630 --> 00:03:57,660
looking at here we are we're looking at

108
00:04:02,600 --> 00:03:59,640
the nozzle of a four segments Space

109
00:04:05,120 --> 00:04:02,610
Shuttle boost to the RS RM and out of

110
00:04:07,340 --> 00:04:05,130
this nozzle what's this motor lights for

111
00:04:10,010 --> 00:04:07,350
a little over two minutes it produces up

112
00:04:12,530 --> 00:04:10,020
to close to 2.9 million pounds of thrust

113
00:04:14,510 --> 00:04:12,540

and a lot of preparation by your team

114
00:04:16,699 --> 00:04:14,520
goes into this Tess tell us what goes

115
00:04:18,320 --> 00:04:16,709
into it it does because just like with

116
00:04:20,210 --> 00:04:18,330
the the motors when they're assembled

117
00:04:22,070 --> 00:04:20,220
for flight we do the same thing here

118
00:04:25,430 --> 00:04:22,080
that was produced four separate segments

119
00:04:28,400 --> 00:04:25,440
the nozzle and the forward dome we take

120
00:04:30,650 --> 00:04:28,410
a period of months really several months

121
00:04:32,780 --> 00:04:30,660
to put all this together but what's

122
00:04:34,820 --> 00:04:32,790
different between this motor and the

123
00:04:37,630 --> 00:04:34,830
shuttle motors first of all this is

124
00:04:39,950 --> 00:04:37,640
horizontal we fired horizontally so

125
00:04:41,660 --> 00:04:39,960
instead of it moving we have it held

126
00:04:44,390 --> 00:04:41,670
down with millions of pounds of concrete

127
00:04:46,340 --> 00:04:44,400
anchored under the floor but we also

128
00:04:49,580 --> 00:04:46,350
instrument it so we actually even have

129
00:04:52,130 --> 00:04:49,590
sensors poured into the propellant grain

130
00:04:53,960 --> 00:04:52,140
so while the motors burn and we gather

131
00:04:57,020 --> 00:04:53,970
many many parameters of data to

132
00:04:59,540 --> 00:04:57,030
understand within fine tolerance how

133
00:05:01,820 --> 00:04:59,550
well its operating so now you're on the

134
00:05:03,470 --> 00:05:01,830
test side but you've also had the unique

135
00:05:04,910 --> 00:05:03,480
perspective from the other side you've

136
00:05:07,580 --> 00:05:04,920
written a couple of these into space

137
00:05:09,440 --> 00:05:07,590
five times tell us how that is a

138
00:05:11,090 --> 00:05:09,450

different perspective for you it is a

139
00:05:12,590 --> 00:05:11,100
different perspective and first of all

140
00:05:13,550 --> 00:05:12,600
when these beauties light there's no

141
00:05:15,020 --> 00:05:13,560
doubt in your mind you're going

142
00:05:17,900 --> 00:05:15,030
somewhere you just hope it's the right

143
00:05:19,490 --> 00:05:17,910
place but no you know what we're looking

144
00:05:22,640 --> 00:05:19,500
at I'm very proud of this you we've

145
00:05:24,890 --> 00:05:22,650
we've flown over 250 of these motors

146
00:05:26,210 --> 00:05:24,900
these boosters they're extremely

147
00:05:28,970 --> 00:05:26,220
reliable matter of fact the most

148
00:05:31,130 --> 00:05:28,980
reliable human-rated rocket motor in the

149
00:05:33,050 --> 00:05:31,140
world so a lot of pride when this last

150
00:05:35,390 --> 00:05:33,060
firing takes place there is there's a

151
00:05:37,430 --> 00:05:35,400
lot of pride a lot of history I've got

152
00:05:38,660 --> 00:05:37,440
about a dozen folks here in the test

153
00:05:40,490 --> 00:05:38,670
area that worked for me that we're

154
00:05:43,190 --> 00:05:40,500
involved in the very first firing so

155
00:05:47,240 --> 00:05:43,200
it's really neat to see the history from

156
00:05:49,010 --> 00:05:47,250
the very first firing back in the 80s to

157
00:06:51,040 --> 00:05:49,020
where we are now all right well thanks a

158
00:06:55,160 --> 00:06:53,180
look at that melted the snow right off

159
00:06:56,570 --> 00:06:55,170
the mountain it was beautiful and Julia

160
00:06:58,280 --> 00:06:56,580
testaments all the hard work people have

161
00:07:00,140 --> 00:06:58,290
put into the shuttle program find out