1
00:00:01,160 --> 00:00:12,640
[Music]

2
00:00:17,029 --> 00:00:15,230
recent tests involving the orbiter

3
00:00:18,859 --> 00:00:17,039
Atlantis at the Kennedy Space Center

4
00:00:22,010 --> 00:00:18,869
Florida were part of a comprehensive

5
00:00:24,080 --> 00:00:22,020
NASA white program to certify that when

6
00:00:26,359 --> 00:00:24,090
the shuttle does lift off again in early

7
00:00:28,760 --> 00:00:26,369
nineteen eighty eight every conceivable

8
00:00:30,950 --> 00:00:28,770
effort will have been made to ensure the

9
00:00:33,439 --> 00:00:30,960
safety and reliability of the entire

10
00:00:35,360 --> 00:00:33,449
system one of the most significant

11
00:00:37,700 --> 00:00:35,370
modifications being made is in the

12
00:00:40,069 --> 00:00:37,710
design of the solid rocket motors the

13
00:00:42,619 --> 00:00:40,079

white boosters used to propel shuttles

14
00:00:45,349 --> 00:00:42,629
into orbit these Rockets are made up of

15
00:00:47,930 --> 00:00:45,359
segments some assembled or stacked at

16
00:00:49,729 --> 00:00:47,940
Kennedy prior to a launch the joint

17
00:00:51,770 --> 00:00:49,739
between these Rockets segments is being

18
00:00:54,529 --> 00:00:51,780
redesigned as shown in this

19
00:00:56,719 --> 00:00:54,539
cross-sectional view the new design uses

20
00:00:59,660 --> 00:00:56,729
a capture latch to achieve a much

21
00:01:01,610 --> 00:00:59,670
tighter fit a third o ring is also

22
00:01:03,379 --> 00:01:01,620
included which allows engineers to

23
00:01:05,539 --> 00:01:03,389
verify that the joint is working

24
00:01:08,359 --> 00:01:05,549
properly and the insulation in the

25
00:01:12,760 --> 00:01:08,369
segments separated by a putty field gap

26
00:01:17,929 --> 00:01:15,319
the new joint will be subjected to an

27
00:01:20,389 --> 00:01:17,939
extensive evaluation program including

28
00:01:22,400 --> 00:01:20,399
numerous rocket segment test firings in

29
00:01:24,860 --> 00:01:22,410
facilities like this one and Morton

30
00:01:27,440 --> 00:01:24,870
Thiokol company in Utah before it is

31
00:01:30,200 --> 00:01:27,450
deemed flight-worthy the manager of the

32
00:01:32,090 --> 00:01:30,210
solid rocket motor redesign team NASA's

33
00:01:35,030 --> 00:01:32,100
Marshall Space Flight Center in Alabama

34
00:01:36,610 --> 00:01:35,040
is John Thomas we're taking every step

35
00:01:39,530 --> 00:01:36,620
possible

36
00:01:42,350 --> 00:01:39,540
in order to ensure that the design is

37
00:01:45,130 --> 00:01:42,360
safe with as many tests on as many test

38
00:01:47,510 --> 00:01:45,140

articles as if treated

39
00:01:49,850 --> 00:01:47,520
solid Rockets have traditionally been

40
00:01:52,400 --> 00:01:49,860
test-fired in the horizontal position

41
00:01:54,740 --> 00:01:52,410
the National Research Council overseeing

42
00:01:57,140 --> 00:01:54,750
NASA's redesign effort has been briefed

43
00:01:59,420 --> 00:01:57,150
and concurs with the agency's decision

44
00:02:01,999 --> 00:01:59,430
to continue horizontal tests that

45
00:02:04,070 --> 00:02:02,009
simulate launch forces this makes it

46
00:02:05,900 --> 00:02:04,080
possible to subject the Rockets to even

47
00:02:08,660 --> 00:02:05,910
greater stresses than they encounter

48
00:02:10,160 --> 00:02:08,670
during an actual shuttle flight in an

49
00:02:12,500 --> 00:02:10,170
effort to take advantage of their flight

50
00:02:15,140 --> 00:02:12,510
operations experience several astronauts

51
00:02:17,090 --> 00:02:15,150
including Bob Crippen a veteran of for

52
00:02:19,240 --> 00:02:17,100
shuttle missions have been given key

53
00:02:21,770 --> 00:02:19,250
management roles within the agency

54
00:02:23,900 --> 00:02:21,780
having overseen the restructuring of

55
00:02:25,610 --> 00:02:23,910
management and communications Crippen

56
00:02:28,550 --> 00:02:25,620
has been named deputy director for

57
00:02:31,039 --> 00:02:28,560
shuttle operations astronaut Brian

58
00:02:32,570 --> 00:02:31,049
O'Connor pilot of the 23rd shuttle

59
00:02:34,880 --> 00:02:32,580
flight is chairman of a newly

60
00:02:37,100 --> 00:02:34,890
established Space Flight Safety panel

61
00:02:39,670 --> 00:02:37,110
with oversight responsibility for all

62
00:02:41,840 --> 00:02:39,680
NASA manned space program activities

63
00:02:44,150 --> 00:02:41,850

recently O'Connor talked about the

64
00:02:45,920 --> 00:02:44,160
panel's role the idea that people ought

65
00:02:48,500 --> 00:02:45,930
to have in any flying operation is that

66
00:02:50,600 --> 00:02:48,510
everyone is responsible for safety the

67
00:02:53,120 --> 00:02:50,610
purpose of the safety officer or for a

68
00:02:57,050 --> 00:02:53,130
safety panel like we have would be to

69
00:02:58,220 --> 00:02:57,060
help the managers as advisors to point

70
00:03:00,140 --> 00:02:58,230
out things that we think may be

71
00:03:01,970 --> 00:03:00,150
deficiencies that they should correct

72
00:03:05,590 --> 00:03:01,980
because they are responsible for the

73
00:03:08,600 --> 00:03:05,600
safe operation of the of the program

74
00:03:10,370 --> 00:03:08,610
the flight safety as a goal work is

75
00:03:12,560 --> 00:03:10,380
continuing to improve the shuttles

76
00:03:14,539 --> 00:03:12,570
landing system the greatest problems

77
00:03:16,580 --> 00:03:14,549
have occurred during landings at Kennedy

78
00:03:18,440 --> 00:03:16,590
where the rough textured runway has

79
00:03:20,870 --> 00:03:18,450
caused excessive tread wear on the tires

80
00:03:23,000 --> 00:03:20,880
at the langley research center's

81
00:03:25,160 --> 00:03:23,010
aircraft landing dynamics facility

82
00:03:28,410 --> 00:03:25,170
shuttle tires are mounted on a huge

83
00:03:30,750 --> 00:03:28,420
carriage this 54 time frame is then

84
00:03:33,750 --> 00:03:30,760
propelled down the runway at speeds up

85
00:03:36,750 --> 00:03:33,760
to 250 miles per hour similar in the

86
00:03:42,509 --> 00:03:39,780
at this one of the clear engineers

87
00:03:44,300 --> 00:03:42,519
monitor energy stress wear patterns and

88
00:03:47,220 --> 00:03:44,310

burn marks

89
00:03:49,949 --> 00:03:47,230
about 10,000 gallons of water are used

90
00:03:51,280 --> 00:03:49,959
to drive the carriage nearly 2 million

91
00:03:55,170 --> 00:03:51,290
pounds of thrust

92
00:03:57,729 --> 00:03:55,180
the equivalent of almost 18 G's

93
00:03:59,699 --> 00:03:57,739
the people responsible for the shuttles

94
00:04:02,410 --> 00:03:59,709
main engines are busy as well

95
00:04:04,839 --> 00:04:02,420
extensively reevaluating almost every

96
00:04:06,699 --> 00:04:04,849
aspect in this system the main engines

97
00:04:08,530 --> 00:04:06,709
have performed well during almost five

98
00:04:10,569 --> 00:04:08,540
years of shuttle flights but the

99
00:04:13,149 --> 00:04:10,579
Challenger accident has reset sized

100
00:04:15,099 --> 00:04:13,159
everyone to flight safety issues main

101
00:04:16,319 --> 00:04:15,109
engine tests are being carried out at

102
00:04:18,640 --> 00:04:16,329
the National Space Technology

103
00:04:20,800 --> 00:04:18,650
laboratories in Mississippi and the

104
00:04:23,279 --> 00:04:20,810
Rocketdyne corporation's facility in

105
00:04:26,050 --> 00:04:23,289
California

106
00:04:28,029 --> 00:04:26,060
one of the hardest facts to accept is

107
00:04:30,219 --> 00:04:28,039
that no matter how much retesting and

108
00:04:32,350 --> 00:04:30,229
redesign is done no matter how much

109
00:04:34,710 --> 00:04:32,360
effort is put into making the shuttle as

110
00:04:38,250 --> 00:04:34,720
safe and reliable as possible

111
00:04:40,020 --> 00:04:38,260
risk involved perhaps best summing up

112
00:04:42,060 --> 00:04:40,030
the way the people within NASA or

113
00:04:43,950 --> 00:04:42,070

dealing with this issue is the manager

114
00:04:46,260 --> 00:04:43,960
of the shuttle main engine propulsion

115
00:04:48,420 --> 00:04:46,270
projects office Joe Lombardo I

116
00:04:50,760 --> 00:04:48,430
personally judge me on trying to make

117
00:04:53,640 --> 00:04:50,770
the shuttle a successful long-range

118
00:04:56,010 --> 00:04:53,650
program is to make v-necks launch as

119
00:04:57,950 --> 00:04:56,020
safe as we can possibly make it to keep

120
00:05:00,750 --> 00:04:57,960
all our efforts dedicated in our

121
00:05:02,610 --> 00:05:00,760
evaluations and analysis dedicated to

122
00:05:04,670 --> 00:05:02,620
the duck colt will get that one behind

123
00:05:07,520 --> 00:05:04,680
us and then one o'clock the next

124
00:05:09,360 --> 00:05:07,530
NASA shuttle recovery program a

125
00:05:12,540 --> 00:05:09,370
comprehensive effort aimed at a