



1
00:00:28,730 --> 00:00:25,490
we've grown used to wonders in this

2
00:00:30,710 --> 00:00:28,740
century it's hard to dazzle us but for

3
00:00:32,690 --> 00:00:30,720
25 years the United States space program

4
00:00:35,180 --> 00:00:32,700
has been doing just that

5
00:00:57,770 --> 00:00:35,190
the Challenger crew was pulling us into

6
00:01:12,810 --> 00:01:05,160
it's a simulation six selected to help

7
00:01:16,080 --> 00:01:12,820
this country their shuttle is called

8
00:01:18,480 --> 00:01:16,090
discovery like other orbiters it's named

9
00:01:31,399 --> 00:01:18,490
after scientific exploring ships of

10
00:01:35,270 --> 00:01:33,529
hundreds of improvements have been made

11
00:01:42,830 --> 00:01:35,280
in the entire space shuttle system

12
00:01:54,870 --> 00:01:44,700
modifications have been made in the

13
00:01:59,520 --> 00:01:54,880

design of the segments mated together

14

00:02:02,219 --> 00:01:59,530

prior to launch connections between the

15

00:02:04,230 --> 00:02:02,229

segments are called joints redesigned to

16

00:02:06,510 --> 00:02:04,240

prevent hot gases from burning through

17

00:02:08,969 --> 00:02:06,520

the new joints have undergone numerous

18

00:02:26,990 --> 00:02:08,979

tests at NASA's Marshall Space Flight

19

00:02:27,000 --> 00:02:34,760

test preparations were extensive

20

00:02:34,770 --> 00:02:49,000

inspections

21

00:02:54,260 --> 00:02:52,190

some of the firings defects were created

22

00:02:57,170 --> 00:02:54,270

both in the Rockets insulation and

23

00:03:00,530 --> 00:02:57,180

critical wings to ensure that backup

24

00:03:07,559 --> 00:03:00,540

systems work properly the o-rings are

25

00:03:13,050 --> 00:03:10,330

as shown in this cross-section the new

26

00:03:15,880 --> 00:03:13,060

feel joint has an additional oring

27

00:03:17,890 --> 00:03:15,890

improved insulation and a metal lip

28

00:03:20,350 --> 00:03:17,900

called the capture feature are also

29

00:03:33,440 --> 00:03:20,360

included to better combat liftoff

30

00:04:10,910 --> 00:03:36,170

NASA engineers

31

00:04:10,920 --> 00:04:18,890

commander and his crew

32

00:04:18,900 --> 00:05:15,620

a team of two others

33

00:05:21,450 --> 00:05:18,390

through training regimens at the Johnson

34

00:05:23,810 --> 00:05:21,460

Space Center are demanding mission

35

00:05:26,370 --> 00:05:23,820

specialists pinky Nelson and Mike lounge

36

00:05:32,610 --> 00:05:26,380

practice space walking procedures in

37

00:05:47,709 --> 00:05:35,400

de Villiers a third mission specialist

38

00:06:09,670 --> 00:05:50,229

in between numerous exercises with their

39

00:06:14,840 --> 00:06:12,680

the crews main tasks will be to put in a

40

00:06:20,330 --> 00:06:14,850

space a large tracking and data relay

41

00:06:24,230 --> 00:06:20,340

satellite called Tetris seen by the STS

42

00:06:29,540 --> 00:06:24,240

six astronauts reduce vacation blackouts

43

00:06:31,909 --> 00:06:29,550

between shuttles in the ground once

44

00:06:39,140 --> 00:06:31,919

titre sea is in place earth to space

45

00:06:41,060 --> 00:06:39,150

contact will be almost continuous they

46

00:06:43,640 --> 00:06:41,070

will also manage eleven in-cabin

47

00:06:46,070 --> 00:06:43,650

experiments some commercial and -

48

00:06:49,450 --> 00:06:46,080

designed by students before landing and

49

00:06:51,740 --> 00:06:49,460

trifling with five days later the

50

00:06:53,839 --> 00:06:51,750

prestige and leadership under

51
00:06:56,360 --> 00:06:53,849
administrative forms so hard over these

52
00:06:57,950 --> 00:06:56,370
30 years or two gainst lines of

53
00:07:10,060 --> 00:06:57,960
communication just reference to our

54
00:07:19,339 --> 00:07:10,070
space sensibilities clearly agency

55
00:07:21,260 --> 00:07:19,349
flight another astronaut Brian O'Connor

56
00:07:37,379 --> 00:07:21,270
was chairman of a Space Flight Safety

57
00:07:41,790 --> 00:07:40,140
I believe that's the way things should

58
00:07:44,070 --> 00:07:41,800
be run you should have somebody in

59
00:07:48,540 --> 00:07:44,080
charge and delegated as a point of

60
00:07:50,879 --> 00:07:48,550
responsibility new safety hardware

61
00:07:52,980 --> 00:07:50,889
introduced with Discovery's flight will

62
00:07:55,499 --> 00:07:52,990
allow astronauts to parachute from the

63
00:07:57,689 --> 00:07:55,509

shuttle in some emergencies the

64

00:08:00,480 --> 00:07:57,699

equipment consists of a pole that can be

65

00:08:02,640 --> 00:08:00,490

extended out the orbiters main hatch

66

00:08:05,189 --> 00:08:02,650

astronauts attach themselves to the pole

67

00:08:08,629 --> 00:08:05,199

and slide down once clear

68

00:08:13,219 --> 00:08:10,820

along with the quick escape system are

69

00:08:15,800 --> 00:08:13,229

the crews new pressure seats containing

70

00:08:24,830 --> 00:08:15,810

the parachute life support hardware and

71

00:08:26,959 --> 00:08:24,840

a life raft hear they practice drills

72

00:08:29,240 --> 00:08:26,969

with additional safety equipment an

73

00:08:32,240 --> 00:08:29,250

inflatable slide similar to the type

74

00:08:34,519 --> 00:08:32,250

carried aboard commercial jet life if an

75

00:08:38,990 --> 00:08:34,529

emergency develops on landing the slide

76
00:08:41,240 --> 00:08:39,000
allows the crew to get out quickly there

77
00:08:43,699 --> 00:08:41,250
are more fire detectors and protective

78
00:08:48,310 --> 00:08:43,709
barriers at the launch pads plus

79
00:08:52,990 --> 00:08:50,680
corporations astronauts and pad

80
00:08:55,450 --> 00:08:53,000
personnel and tougher to achieve and

81
00:09:04,300 --> 00:08:55,460
ride to the ground with an option to use

82
00:09:06,340 --> 00:09:04,310
a new safety bunker once there as a

83
00:09:08,940 --> 00:09:06,350
result of tire wear problems during

84
00:09:11,830 --> 00:09:08,950
shuttle landings at Kennedy Space Center

85
00:09:15,010 --> 00:09:11,840
researchers at NASA Langley studied tire

86
00:09:22,420 --> 00:09:15,020
and runway characteristics once the tire

87
00:09:28,240 --> 00:09:26,260
Johnna track it speeds up to 250 miles

88
00:09:33,840 --> 00:09:28,250

slow motion photography an

89

00:09:38,710 --> 00:09:36,190

Kennedy is one of three Leonard's a

90

00:09:42,130 --> 00:09:38,720

country's strategic to any shuttle

91

00:09:44,350 --> 00:09:42,140

flight after extensive testing engineers

92

00:09:47,829 --> 00:09:44,360

recommended that the surface be notified

93

00:09:50,590 --> 00:09:47,839

the final quarter or texture is etched

94

00:09:53,260 --> 00:09:50,600

lengthwise into sections at each end of

95

00:09:56,079 --> 00:09:53,270

the runway modifications and the

96

00:10:04,160 --> 00:09:56,089

shuttles brakes landing burek animals

97

00:10:09,560 --> 00:10:06,500

while technicians work on Discovery's

98

00:10:11,840 --> 00:10:09,570

payload Bay thousands of heat-resistant

99

00:10:40,069 --> 00:10:11,850

tiles are inspected on the other side of

100

00:10:49,040 --> 00:10:43,050

the solid rocket boosters and large

101
00:10:53,690 --> 00:10:51,230
while space shuttle Discovery is readied

102
00:10:55,730 --> 00:10:53,700
for launch a new orbiter moves through

103
00:10:57,910 --> 00:10:55,740
various stages of construction at

104
00:11:00,680 --> 00:10:57,920
Rockwell International in California

105
00:11:02,600 --> 00:11:00,690
having a four shuttle fleet is necessary

106
00:11:05,060 --> 00:11:02,610
because it takes two to four months

107
00:11:08,390 --> 00:11:05,070
after a mission to prepare an orbiter to

108
00:11:13,770 --> 00:11:10,740
for maintaining the efficiency of this

109
00:11:34,480 --> 00:11:13,780
turnaround process NASA is adding a

110
00:11:39,680 --> 00:11:37,610
in the future the mixed fleet of launch

111
00:11:41,720 --> 00:11:39,690
vehicles will be used rather than

112
00:11:55,180 --> 00:11:41,730
relying on a single transportation

113
00:12:12,460 --> 00:12:00,650

t-minus 15 14 successful men enjoy our

114

00:12:19,670 --> 00:12:15,500

make Marshall are safely reliable as

115

00:12:22,220 --> 00:12:19,680

possible they were his mere inspiration

116

00:12:26,870 --> 00:12:24,650

we are confident we will launch and come

117

00:12:28,700 --> 00:12:26,880

back safely but they're no guarantees

118

00:12:31,730 --> 00:12:28,710

associated with that and there can't be

119

00:12:49,280 --> 00:12:31,740

only way you can guarantee that much

120

00:13:20,790 --> 00:13:14,280

the shuttle is an agency in Space

121

00:13:23,460 --> 00:13:20,800

Station efforts in materials processing

122

00:13:26,340 --> 00:13:23,470

in microgravity research and led to the

123

00:13:31,470 --> 00:13:26,350

creation of metal alloys and refinement

124

00:13:34,350 --> 00:13:31,480

of new drugs the upcoming mission renews

125

00:13:36,270 --> 00:13:34,360

the commitment to these achievements and

126

00:13:39,540 --> 00:13:36,280

as a reminder of what makes them

127

00:13:42,270 --> 00:13:39,550

possible it is people it is everybody

128

00:13:44,190 --> 00:13:42,280

from the secretary the person that

129

00:13:46,440 --> 00:13:44,200

sweeps the floor to the engineer the

130

00:13:48,660 --> 00:13:46,450

technician to the management to the

131

00:13:50,280 --> 00:13:48,670

administrator it is people and it is

132

00:13:53,010 --> 00:13:50,290

important that everybody out there

133

00:13:55,320 --> 00:13:53,020

understand that if the hardware is

134

00:13:58,080 --> 00:13:55,330

important but it is people that make