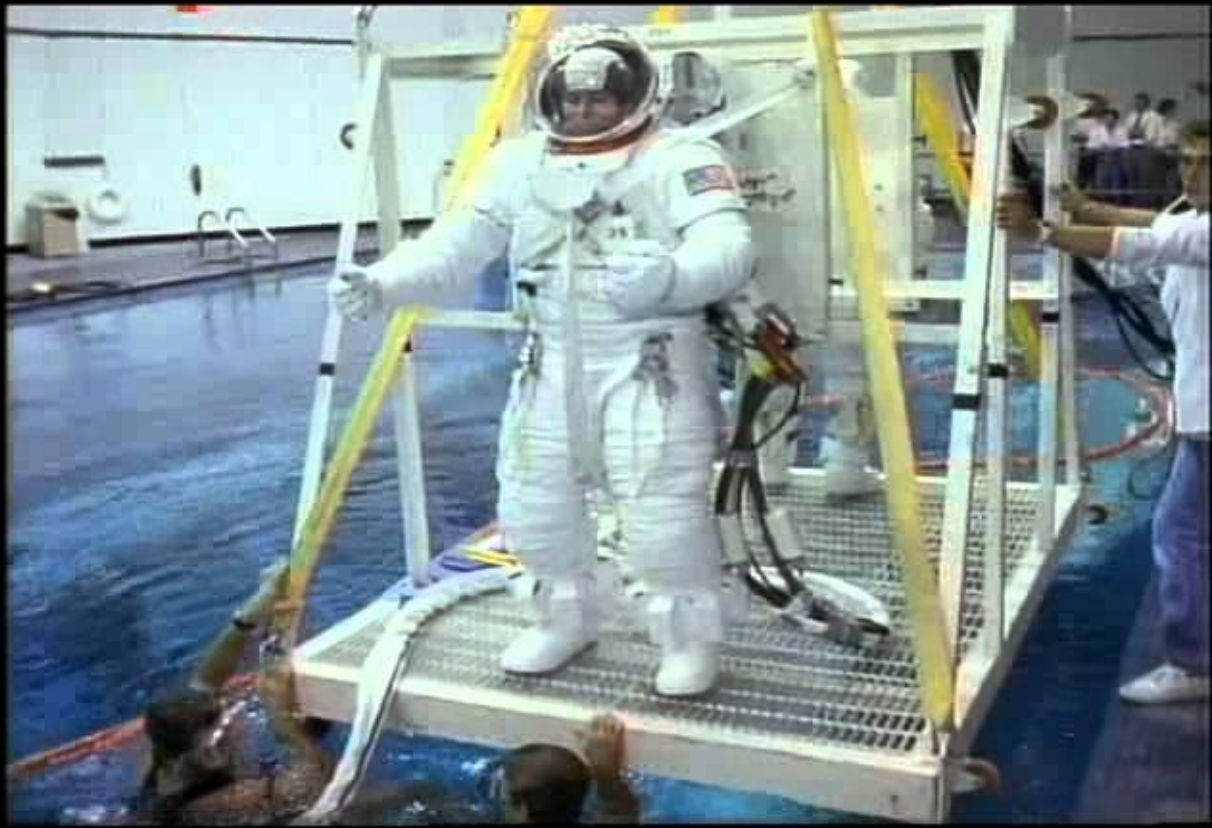

1
00:00:13,730 --> 00:00:11,480
the flamboyant aviator Wiley Post proved

2
00:00:15,950 --> 00:00:13,740
the first real pressure suit when he

3
00:00:19,060 --> 00:00:15,960
flew his plane the win he made won a

4
00:00:22,400 --> 00:00:19,070
series of high-altitude flights in 1935

5
00:00:24,439 --> 00:00:22,410
years later many suits for space evolved

6
00:00:26,990 --> 00:00:24,449
based on posts design

7
00:00:29,390 --> 00:00:27,000
there were even designs that never made

8
00:00:31,070 --> 00:00:29,400
it this lunar model was developed at a

9
00:00:33,139 --> 00:00:31,080
time when it was uncertain whether the

10
00:00:37,700 --> 00:00:33,149
moon surface could support a person's

11
00:00:40,160 --> 00:00:37,710
weight our first space suits will direct

12
00:00:44,420 --> 00:00:40,170
adaptations from Navy and Air Force high

13
00:00:46,700 --> 00:00:44,430

altitude pressure garments John Glenn

14
00:00:48,889 --> 00:00:46,710
America's first astronaut to orbit the

15
00:00:53,540 --> 00:00:48,899
Earth enemies during the flight of

16
00:00:55,610 --> 00:00:53,550
friendship 7 in 1962 later astronaut ed

17
00:00:57,979 --> 00:00:55,620
white made history as America's first

18
00:00:59,840 --> 00:00:57,989
space rocket for the first time the

19
00:01:02,529 --> 00:00:59,850
suits had to withstand the pull a vacuum

20
00:01:05,450 --> 00:01:02,539
of space outside the capsule the

21
00:01:09,380 --> 00:01:05,460
astronaut extreme temperatures and micro

22
00:01:11,120 --> 00:01:09,390
meteorites to land astronauts on them in

23
00:01:13,730 --> 00:01:11,130
a different set of functions was

24
00:01:15,469 --> 00:01:13,740
required and full range physical

25
00:01:19,310 --> 00:01:15,479
movement was necessary to carry out

26
00:01:22,700 --> 00:01:19,320
exploration of the moon's surface these

27
00:01:25,900 --> 00:01:22,710
sheets were custom-made each scene was

28
00:01:31,730 --> 00:01:28,790
gloves were molded from the hands of the

29
00:01:35,690 --> 00:01:31,740
astronauts cooling was provided by this

30
00:01:37,670 --> 00:01:35,700
liquid cooled undergarment the suit

31
00:01:39,910 --> 00:01:37,680
consisted of a pressure barrier and

32
00:01:42,380 --> 00:01:39,920
multiple layers of thermal

33
00:01:45,530 --> 00:01:42,390
micrometeorite and abrasion resistant

34
00:01:48,590 --> 00:01:45,540
material the shovel required yet another

35
00:01:52,520 --> 00:01:48,600
spacesuit concept the modular design can

36
00:01:54,170 --> 00:01:52,530
be converted to fit any astronaut today

37
00:01:56,630 --> 00:01:54,180
there is much work underway at the

38
00:02:00,590 --> 00:01:56,640

Johnson Space Center testing a zero

39
00:02:03,350 --> 00:02:00,600
pre-breathe suit or GPS targeted for us

40
00:02:05,359 --> 00:02:03,360
on a space station in the underwater

41
00:02:07,940 --> 00:02:05,369
test facility that simulates space

42
00:02:10,100 --> 00:02:07,950
conditions astronaut Jerry Ross helps

43
00:02:11,930 --> 00:02:10,110
evaluate normal suit components while

44
00:02:15,170 --> 00:02:11,940
practicing mine assembly of Space

45
00:02:17,030 --> 00:02:15,180
Station structures this prototype suit

46
00:02:19,520 --> 00:02:17,040
eliminates the extensive ongoing

47
00:02:22,010 --> 00:02:19,530
preparation required before working in

48
00:02:23,750 --> 00:02:22,020
space with the current shuttle said not

49
00:02:25,250 --> 00:02:23,760
only will this be more efficient that

50
00:02:27,350 --> 00:02:25,260
the savings in time will allow

51
00:02:30,979 --> 00:02:27,360
astronauts to respond to emergencies

52
00:02:32,570 --> 00:02:30,989
immediately there are trade-offs the

53
00:02:34,550 --> 00:02:32,580
pressure in the zps suit is

54
00:02:36,949 --> 00:02:34,560
approximately twice that in the shuttle

55
00:02:39,170 --> 00:02:36,959
suit the increased pressure is harder to

56
00:02:41,810 --> 00:02:39,180
design for because the suit has to be

57
00:02:43,460 --> 00:02:41,820
sturdy joints need to be engineered so

58
00:02:46,670 --> 00:02:43,470
there is minimal resistance to movement

59
00:02:48,470 --> 00:02:46,680
Joe Cosmo gives an example if you looked

60
00:02:51,140 --> 00:02:48,480
at your hand and see all the functions

61
00:02:53,810 --> 00:02:51,150
that can perform to try to do that in a

62
00:02:55,850 --> 00:02:53,820
simple type of structure it's almost

63
00:02:59,120 --> 00:02:55,860

next to impossible but we're trying to

64
00:03:01,130 --> 00:02:59,130
achieve it across the country another

65
00:03:01,760 --> 00:03:01,140
space suit is on there at NASA's Ames

66
00:03:04,070 --> 00:03:01,770
Research

67
00:03:06,680 --> 00:03:04,080
in California is working on a suit that

68
00:03:10,640 --> 00:03:06,690
may someday see application on the space

69
00:03:12,920 --> 00:03:10,650
station Vic Vic Udall has devoted a

70
00:03:16,700 --> 00:03:12,930
major part of his career to working on

71
00:03:18,260 --> 00:03:16,710
hard spacesuit technology the suit can

72
00:03:20,600 --> 00:03:18,270
be entered from the rear and is built

73
00:03:23,030 --> 00:03:20,610
entirely of aluminum a good material for

74
00:03:25,460 --> 00:03:23,040
space it shields well against radiation

75
00:03:27,320 --> 00:03:25,470
and will hold up to the daily rigors of

76
00:03:29,890 --> 00:03:27,330
the space station we know enough about

77
00:03:33,110 --> 00:03:29,900
metals that we can use conventional

78
00:03:35,840 --> 00:03:33,120
aerospace fabrication techniques and

79
00:03:38,740 --> 00:03:35,850
reproduce the suit Camilla won the tenth

80
00:03:41,270 --> 00:03:38,750
one will be the same drill time

81
00:03:44,000 --> 00:03:41,280
spacesuits have began and limited

82
00:03:45,020 --> 00:03:44,010
mobility systems to the precedent where

83
00:03:47,150 --> 00:03:45,030
we are seeing more and more