1
00:00:04,470 --> 00:00:02,629
once an instrument is installed the

2
00:00:06,150 --> 00:00:04,480
payload volume can be sealed by the

3
00:00:07,670 --> 00:00:06,160
installation of a hatch

4
00:00:10,070 --> 00:00:07,680
the hatch can be installed in any

5
00:00:12,789 --> 00:00:10,080
orientation and is fastened in place

6
00:00:14,549 --> 00:00:12,799
using simple quarter turn fasteners

7
00:00:16,310 --> 00:00:14,559
the hatch is part of the light seal that

8
00:00:27,509 --> 00:00:16,320
prevents onboard light from entering the

9
00:00:32,310 --> 00:00:29,750
also part of the light seal is the light

10
00:00:39,830 --> 00:00:32,320
curtain which attaches over the hatch on

11
00:00:43,430 --> 00:00:41,510
there is also a light shroud available

12
00:00:44,950 --> 00:00:43,440
known as the kayak shield which can be

13
00:00:46,709 --> 00:00:44,960

installed in place of the hatch in the

14
00:00:48,069 --> 00:00:46,719
light curtain to allow crew access to

15
00:00:50,069 --> 00:00:48,079
the payload volume while still

16
00:00:52,069 --> 00:00:50,079
maintaining a light seal the crewman

17
00:00:53,830 --> 00:00:52,079
would enter the shield here and then

18
00:00:55,270 --> 00:00:53,840
cinch it around his waist

19
00:00:57,189 --> 00:00:55,280
the kayak shield would be used when

20
00:01:00,229 --> 00:00:57,199
manual operation of an instrument by the

21
00:01:02,069 --> 00:01:00,239
crew is required

22
00:01:03,990 --> 00:01:02,079
to protect the interior pressure pane

23
00:01:05,590 --> 00:01:04,000
after the scratch pane has been removed

24
00:01:07,270 --> 00:01:05,600
and while the crew is installing or

25
00:01:09,750 --> 00:01:07,280
removing instruments within the payload

26
00:01:11,590 --> 00:01:09,760
volume is the bump shield the bump

27
00:01:13,350 --> 00:01:11,600
shield is essentially a transparent

28
00:01:15,350 --> 00:01:13,360
internal shutter that is deployed or

29
00:01:16,870 --> 00:01:15,360
retracted using a slide handle on the

30
00:01:18,310 --> 00:01:16,880
left side of the rack

31
00:01:20,230 --> 00:01:18,320
the bump shield is deployed when the

32
00:01:21,990 --> 00:01:20,240
handle is in the down position and is

33
00:01:30,789 --> 00:01:22,000
retracted when it is returned to the up

34
00:01:34,789 --> 00:01:32,550
on the right side of the rack is a

35
00:01:36,710 --> 00:01:34,799
similar slide handle for opening and

36
00:01:38,710 --> 00:01:36,720
closing the external window shutter this

37
00:01:40,469 --> 00:01:38,720
capability is provided so that the crew

38
00:01:42,069 --> 00:01:40,479

can open and close the shutter without

39
00:01:44,389 --> 00:01:42,079
having to disturb a payload or

40
00:01:46,950 --> 00:01:44,399
compromise the light seal once a payload

41
00:01:48,710 --> 00:01:46,960
is installed within the payload volume

42
00:01:50,710 --> 00:01:48,720
below the payload volume is a stowage

43
00:01:54,069 --> 00:01:50,720
locker for wharf hardware like the hatch

44
00:01:57,350 --> 00:01:54,079
and the scratch pane

45
00:01:59,510 --> 00:01:57,360
is the hatch in its stowage bag

46
00:02:03,429 --> 00:01:59,520
as you can see it fits easily into the

47
00:02:06,870 --> 00:02:05,030
likewise

48
00:02:08,550 --> 00:02:06,880
the bag containing the scratch pane can

49
00:02:15,270 --> 00:02:08,560
also be placed in the stowage locker

50
00:02:18,790 --> 00:02:16,710
there are also three wharf provided

51
00:02:20,390 --> 00:02:18,800
stowage bags two large ones like this

52
00:02:21,830 --> 00:02:20,400
and one small one for temporarily

53
00:02:23,670 --> 00:02:21,840
stowing miscellaneous equipment

54
00:02:25,270 --> 00:02:23,680
associated with the payload

55
00:02:27,910 --> 00:02:25,280
fittings are provided on the stowage

56
00:02:29,990 --> 00:02:27,920
bags so that they can be attached to any

57
00:02:31,589 --> 00:02:30,000
sea track rail

58
00:02:34,229 --> 00:02:31,599
these bags are normally stowed in the

59
00:02:35,990 --> 00:02:34,239
stowage locker along with the kayak

60
00:02:42,550 --> 00:02:36,000
shield and the light curtain when not in

61
00:02:45,910 --> 00:02:44,150
located within the upper section of the

62
00:02:47,670 --> 00:02:45,920
rack above the payload volume is the

63
00:02:49,589 --> 00:02:47,680

wharf's avionics suite

64
00:02:51,990 --> 00:02:49,599
the avionics suite includes the rack

65
00:02:54,710 --> 00:02:52,000
interface controller or ric

66
00:02:56,550 --> 00:02:54,720
the payload ethernet hubridge or peb

67
00:02:59,110 --> 00:02:56,560
and a mass storage device capable of

68
00:03:00,790 --> 00:02:59,120
storing up to 13 gigabytes

69
00:03:02,949 --> 00:03:00,800
the ric is the central controller for

70
00:03:04,630 --> 00:03:02,959
the rack and the peb is the rax data

71
00:03:06,390 --> 00:03:04,640
controller for the routing and format

72
00:03:08,550 --> 00:03:06,400
conversion of data

73
00:03:10,710 --> 00:03:08,560
data can also be stored on an individual

74
00:03:13,509 --> 00:03:10,720
user's mass storage device of choice

75
00:03:15,190 --> 00:03:13,519
connected directly to a payload

76
00:03:17,270 --> 00:03:15,200
another piece of hardware available for

77
00:03:18,949 --> 00:03:17,280
use is the small camera bracket

78
00:03:20,710 --> 00:03:18,959
it is intended for use with still and

79
00:03:22,149 --> 00:03:20,720
video cameras and other instruments that

80
00:03:24,710 --> 00:03:22,159
do not require a high degree of

81
00:03:28,789 --> 00:03:26,390
the bracket can be attached anywhere on

82
00:03:30,869 --> 00:03:28,799
the payload shelf using its four 1032

83
00:03:33,030 --> 00:03:30,879
thumb wheel screws and could be mounted

84
00:03:34,309 --> 00:03:33,040
coaxially with a primary payload sensor

85
00:03:36,630 --> 00:03:34,319
if desired

86
00:03:38,710 --> 00:03:36,640
as you can see it has a manual pan and

87
00:03:40,869 --> 00:03:38,720
tilt capability and the position of the

88
00:03:44,070 --> 00:03:40,879

camera relative to the window is also

89
00:03:47,990 --> 00:03:46,149
over the last four decades photographs

90
00:03:49,589 --> 00:03:48,000
of the earth taken by astronauts have

91
00:03:51,589 --> 00:03:49,599
changed the perspective with which we

92
00:03:54,070 --> 00:03:51,599
view our home planet

93
00:03:55,750 --> 00:03:54,080
the high resolution cameras and sensors

94
00:03:58,470 --> 00:03:55,760
of the earth resources experiments

95
00:04:00,070 --> 00:03:58,480
package were focused on the earth

96
00:04:01,830 --> 00:04:00,080
with the advent of the wharf and the

97
00:04:04,070 --> 00:04:01,840
international space station's optical

98
00:04:06,149 --> 00:04:04,080
quality science window there is now for

99
00:04:08,149 --> 00:04:06,159
the first time the capability to perform

100
00:04:09,750 --> 00:04:08,159
multi and hyperspectral remote sensing

101
00:04:11,270 --> 00:04:09,760
of the earth from a manned space

102
00:04:12,949 --> 00:04:11,280
platform

103
00:04:14,630 --> 00:04:12,959
the international space station is an

104
00:04:17,110 --> 00:04:14,640
excellent vantage point for monitoring

105
00:04:19,430 --> 00:04:17,120
the earth's atmosphere oceans and land

106
00:04:21,590 --> 00:04:19,440
resources and provides an affordable

107
00:04:22,629 --> 00:04:21,600
platform on which such instruments can

108
00:04:24,150 --> 00:04:22,639
fly

109
00:04:25,430 --> 00:04:24,160
from within the wharf they will be able

110
00:04:27,270 --> 00:04:25,440
to study these components of our

111
00:04:28,950 --> 00:04:27,280
planetary system as well as the

112
00:04:30,950 --> 00:04:28,960
interactions among them

113
00:04:33,110 --> 00:04:30,960

to further advance our understanding of

114
00:04:34,629 --> 00:04:33,120
the effects of both natural and human

115
00:04:36,390 --> 00:04:34,639
induced changes on the global

116
00:04:38,310 --> 00:04:36,400
environment in keeping with nasa's

117
00:04:42,629 --> 00:04:38,320
mission to understand and protect our

118
00:04:44,390 --> 00:04:42,639
home planet and improve life on earth

119
00:04:45,990 --> 00:04:44,400
i hope this video introduction to the

120
00:04:47,590 --> 00:04:46,000
international space station science

121
00:04:49,909 --> 00:04:47,600
window and the wharf has provided you