
PFD
Abort
ADI
Nav Source
Bstr
Flight.PFD
G 034/22:15:23
Flight.Abort
Auto Abort Enable
HECO Target
Nominal
Abort Oride
Tripped Abort Triggers
Control Failures
Roll Pitch Yaw ReCS
L Roll R Roll RoCS
Sum
Batt 1
Batt 2
Batt 3
Batt 4
Batt 5
Batt 6
Isol
Feed
Load A
Load B
Ess Load
Load C
EPS.Sum
G 034/22:22:52
GNC.Switch
Left Controllers
Right Controllers
Panel Pushbuttons
Mode Norm
Switch
Panel Lights and Panel Converter [F7]
Lamp Test
Cockpit Lights
DAP
Inertial
Free
Master Alarm
CAUTION
Survival RCS
Translate
RCS Cnt Enable
Inhibit
Master Cnt On
Coolant Loop 1
Coolant Loop 2
Pump B On
NH3 Sys 1 On
NH3 Sys 2 On
LCG Pump On
Speed High
SAT Phone
SAR Radio
Side 1
Side 2
FCM 1
FCM 3
VPU 1 BFS
FCM 2
FCM 4
Survival Pyros
Pyro Master Arm
CM Prop Act
CM/SM Sep
Drogue Deploy
Main Deploy
Upright Deploy Riser Cut
PDU Pwr Supply
SM Pwr Supply
Battery
Battery/Aux Bus Voltmeter
120.2
Volts
Source Select

1
00:00:06,070 --> 00:00:04,470
yes my name is lee morin

2
00:00:09,190 --> 00:00:06,080
md phd

3
00:00:11,669 --> 00:00:09,200
and i'm a astronaut mission specialist

4
00:00:14,230 --> 00:00:11,679
with orion america is building a new

5
00:00:15,749 --> 00:00:14,240
spacecraft for exploration could involve

6
00:00:18,070 --> 00:00:15,759
missions to the moon missions to an

7
00:00:19,990 --> 00:00:18,080
asteroid missions to mars and we want

8
00:00:23,349 --> 00:00:20,000
orion to be able to do all those things

9
00:00:26,710 --> 00:00:23,359
to take four astronauts into deep space

10
00:00:29,509 --> 00:00:26,720
and return them safely to the earth and

11
00:00:30,390 --> 00:00:29,519
the goal was to build a cockpit user

12
00:00:32,870 --> 00:00:30,400
interface

13
00:00:35,350 --> 00:00:32,880

a dashboard so to speak that would allow

14
00:00:37,190 --> 00:00:35,360
the crew to control that spacecraft for

15
00:00:39,190 --> 00:00:37,200
that period of time for these deep space

16
00:00:41,750 --> 00:00:39,200
missions and to have the flexibility so

17
00:00:43,350 --> 00:00:41,760
that even if they were away from the

18
00:00:45,110 --> 00:00:43,360
planet for

19
00:00:46,630 --> 00:00:45,120
months or even years

20
00:00:48,950 --> 00:00:46,640
that they would have the information

21
00:00:51,350 --> 00:00:48,960
they needed to fly that vehicle and

22
00:00:53,750 --> 00:00:51,360
return safely to the earth

23
00:00:56,549 --> 00:00:53,760
and the concept was to go with a glass

24
00:00:59,110 --> 00:00:56,559
cockpit and what that means is that the

25
00:01:01,990 --> 00:00:59,120
instruments are all images on a computer

26
00:01:03,990 --> 00:01:02,000
screen they are all on the glass so

27
00:01:06,390 --> 00:01:04,000
rather than flipping a physical switch

28
00:01:08,630 --> 00:01:06,400
the crew brings up a computer screen and

29
00:01:10,710 --> 00:01:08,640
flips a virtual switch a little icon of

30
00:01:14,230 --> 00:01:10,720
a switch or icon of a valve

31
00:01:16,310 --> 00:01:14,240
and with the exception of seven panels

32
00:01:18,390 --> 00:01:16,320
right around the computer screens which

33
00:01:20,630 --> 00:01:18,400
have about 60 switches

34
00:01:22,230 --> 00:01:20,640
that is all of the cockpit of orion

35
00:01:23,990 --> 00:01:22,240
happens on the glass

36
00:01:25,190 --> 00:01:24,000
one big benefit is a weight savings

37
00:01:26,550 --> 00:01:25,200
because you don't have to have a

38
00:01:30,550 --> 00:01:26,560

physical switch

39
00:01:32,310 --> 00:01:30,560
there the weight of the switch but you

40
00:01:33,270 --> 00:01:32,320
also have the weight of the wire to the

41
00:01:35,190 --> 00:01:33,280
switch

42
00:01:37,670 --> 00:01:35,200
and you have to have the weight of

43
00:01:40,950 --> 00:01:37,680
circuitry that takes that wire and feeds

44
00:01:43,670 --> 00:01:40,960
it into the vehicle computers by putting

45
00:01:46,149 --> 00:01:43,680
that on the computer screen you save

46
00:01:47,510 --> 00:01:46,159
that weight and you save the complexity

47
00:01:49,670 --> 00:01:47,520
of those wires

48
00:01:51,910 --> 00:01:49,680
that gives us a lot of flexibility and

49
00:01:53,670 --> 00:01:51,920
as we work with the cockpit if we find

50
00:01:55,590 --> 00:01:53,680
certain ways that we could do it better

51
00:01:57,429 --> 00:01:55,600
it's perhaps easier to update the

52
00:01:59,830 --> 00:01:57,439
software than it is to rewire the

53
00:02:01,990 --> 00:01:59,840
vehicle it's been very exciting to see

54
00:02:02,870 --> 00:02:02,000
the orion and the cockpit come together

55
00:02:04,950 --> 00:02:02,880
and to

56
00:02:07,109 --> 00:02:04,960
see the computer software that i've

57
00:02:10,630 --> 00:02:07,119
helped write and my colleagues have been

58
00:02:13,510 --> 00:02:10,640
writing come together and i think that

59
00:02:15,350 --> 00:02:13,520
these are the screens that

60
00:02:17,350 --> 00:02:15,360
some the first crew that goes to an

61
00:02:19,110 --> 00:02:17,360
asteroid will be looking at to help them

62
00:02:21,110 --> 00:02:19,120
control the vehicle these are the

63
00:02:23,430 --> 00:02:21,120

screens that the first humans who go to

64
00:02:25,670 --> 00:02:23,440
mars we'll be looking at

65
00:02:27,350 --> 00:02:25,680
as that mission unfolds in the decades

66
00:02:30,150 --> 00:02:27,360
ahead the orion is going to be the

67
00:02:32,550 --> 00:02:30,160
linchpin of humanity's exploration

68
00:02:34,309 --> 00:02:32,560
beyond low earth orbit into deep space

69
00:02:36,070 --> 00:02:34,319
to get a chill thinking about the role