



1  
00:00:01,420 --> 00:00:07,250

\h NARRATOR: It takes hundreds of controllers to orchestrate a space shuttle launch. Their office on launch

2  
00:00:07,250 --> 00:00:14,000

\h is one of the most unique work places in the world: a firing room at NASA's Kennedy Space Center in Florida

3  
00:00:14,000 --> 00:00:17,570

\h The firing room serves as the nerve center on launch day.

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00:00:17,570 --> 00:00:19,380

\h LEINBACH: KSC Safety/Mission Assurance?

5  
00:00:19,380 --> 00:00:21,250

\h VOICE: KSC Safety/Mission Assurance is go, Mike.

6  
00:00:21,250 --> 00:00:22,630

\h LEINBACH: Thank you, Mark.

7  
00:00:22,630 --> 00:00:28,280

\h NARRATOR: Behind consoles, wearing headsets and checking off countdown milestones in thick binder

8  
00:00:28,280 --> 00:00:33,990

\h launch specialists monitor the space shuttle as it stands at the launch pad three miles away.

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00:00:33,990 --> 00:00:37,840

\h From the firing room, they also send commands to the spacecraft,

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00:00:37,840 --> 00:00:41,860

\h talk to the astronauts and communicate with dozens of other teams,

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00:00:41,860 --> 00:00:46,520

\h from rescuers near the launch pad to mission controllers in Houston.

12  
00:00:46,520 --> 00:00:53,340

\h A successful countdown and launch requires the team to complete more than 1,600 steps, in order.

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00:00:53,340 --> 00:00:58,550

\h The checklist is contained in part of the eight-volume set of shuttle launch documentation.

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00:00:58,550 --> 00:01:06,720

\h Covering almost 8,000 pages, the books also contain contingency plans for handling launch scrubs or e

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00:01:06,720 --> 00:01:07,980

\h LEINBACH: Range Weather?

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00:01:07,980 --> 00:01:13,040

\h KATHY WINTERS: Weather is green on all constraints, winds are from three feet five degrees, 18 to 25

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00:01:13,040 --> 00:01:15,310

\h LEINBACH: OK, thank you Kathy.

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00:01:15,310 --> 00:01:22,070

\h NARRATOR: Keeping track of the countdown as a whole are the shuttle launch director and the NASA t

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00:01:22,070 --> 00:01:26,000

\h They sit in the front of the firing room at consoles on risers.

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00:01:26,000 --> 00:01:30,710

\h The orbiter test conductors share the second row with the NTDs.

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00:01:30,710 --> 00:01:35,060

\h In the back of the firing room, facing the two-story window looking out at the pads,

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00:01:35,060 --> 00:01:40,020

\h are a series of horseshoe-shaped cabinets. Systems specialists sit there.

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00:01:40,020 --> 00:01:43,760

\h They have a deep knowledge of the inner workings of the space shuttle.

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00:01:43,760 --> 00:01:49,550

\h If a problem crops up, they are the ones who would bring it to the attention of the people in the front of t

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00:01:49,550 --> 00:01:58,010

\h The specialists also would be called on to come up with solutions to allow a safe liftoff and present them

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00:01:58,010 --> 00:02:05,090

\h NASA built space for four firing rooms on the upper floors of the Launch Control Center at Kennedy during the shuttle program.

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00:02:05,090 --> 00:02:10,630

\h Each one is dominated by the angled panes of glass that let controllers inside see the

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00:02:10,630 --> 00:02:15,190

\h spacecraft on the pad and during the first minutes of ascent.

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00:02:15,190 --> 00:02:19,180

\h When the first space shuttle mission launched on April 12, 1981,

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00:02:19,180 --> 00:02:24,560

\h controllers in Firing Room 1 had the primary responsibility for the liftoff.

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00:02:24,560 --> 00:02:30,110

\h The firing room recently was renamed the Young-Crippen Firing Room for that first crew.

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00:02:30,110 --> 00:02:34,880

\h Firing Rooms 2 and 3 also were equipped and staffed.

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00:02:34,880 --> 00:02:40,980

\h Shuttle launches require two active firing rooms: one as the primary and one with senior

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00:02:40,980 --> 00:02:47,430

\h engineering and management personnel teams. A third firing room is capable of stepping in.

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00:02:47,430 --> 00:02:51,730

\h Firing Room 4, which had been a conference room during much of the shuttle program,

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00:02:51,730 --> 00:02:58,680

\h was remodeled and opened in 2005 to give the launch team more room and modern computers.

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00:02:58,680 --> 00:03:03,550

\h The computers are used to constantly monitor the shuttle's myriad of systems.

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00:03:03,550 --> 00:03:11,080

\h Simply put, they can pick up minute changes in a system's status before a human could detect it. Late in

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00:03:11,080 --> 00:03:16,910

\h the computers run the countdown completely through a set of software called the ground launch sequen

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00:03:16,910 --> 00:03:18,820

\h HOBAUGH: We're ready to go.

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00:03:18,820 --> 00:03:24,110

\h LEINBACH: Thank you very much, Scorch. Much appreciate that. NTD, with that, you are cleared to lau

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00:03:24,110 --> 00:03:26,790

\h STEVE PAYNE: Copy, clear to launch.

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00:03:26,790 --> 00:03:32,180

\h NARRATOR: The launch control team can intervene to hold a countdown if they see something they do

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00:03:32,180 --> 00:03:36,400

\h but otherwise it is the software that retracts the orbiter access arm,