

Presented by

KaiNexus

Welcome!

Sound Check – Casual Chat

We will start at 1 pm ET

Please select the speaker you would like to use for today's webinar.

Select a Speaker

Same as System

✓ MacBook Pro Speakers (MacBook Pro Speakers)

Test Speaker & Microphone...

Leave Computer Audio

Audio Settings...

Listen with Computer Audio
(VOIP)

Listen by telephone options
available in the
confirmation email

**Note: Your
microphone
and camera are
not needed and
will remain
disabled.**

Audio Settings



Mistake-Proofing in Action: Real-World Examples Across Industries



Host: Linda Vicaro

Director of Solutions Engineering
Head of Lean Council
Linda.Vicaro@KaiNexus.com

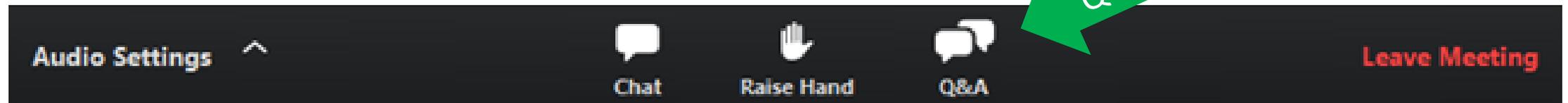
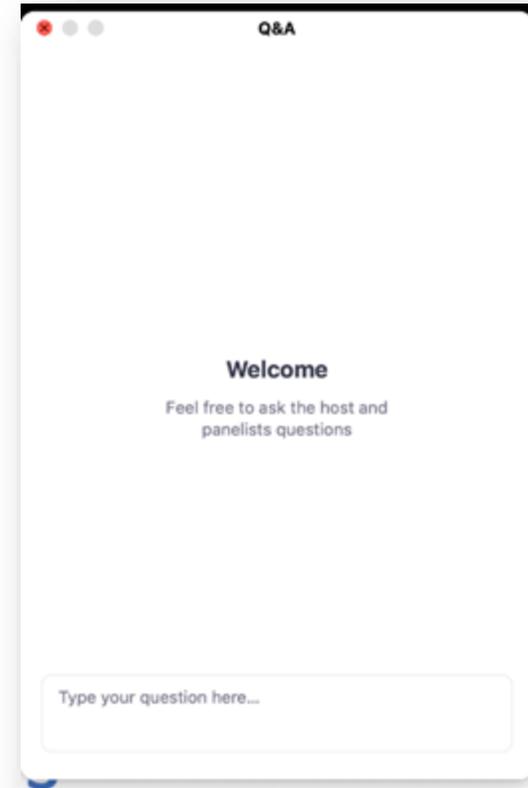


Presenter: Mark Graban

Author, *The Mistakes That Make Us*
Senior Advisor, KaiNexus
Mark@KaiNexus.com

Webinar Logistics

- Presentation (40 minutes)
- Q&A (15 minutes)
 - Use the Zoom Webinar meeting panel to submit a question at any time



- Recording link & slides will be sent via email



[KaiNexus.com](https://kainexus.com)

Optimize Your Improvement Work.

KaiNexus is the solution for your Lean and Improvement work where teams can capture, implement, measure, and share in one system that does it all.



[▶ Watch Demo](#)

[Get Started](#)

KaiNexus

2025 KaiNexicon User Conference

April 29 - May 1, 2025
Hyatt Regency Austin

For More Information visit www.kainexus.com/kainexicon

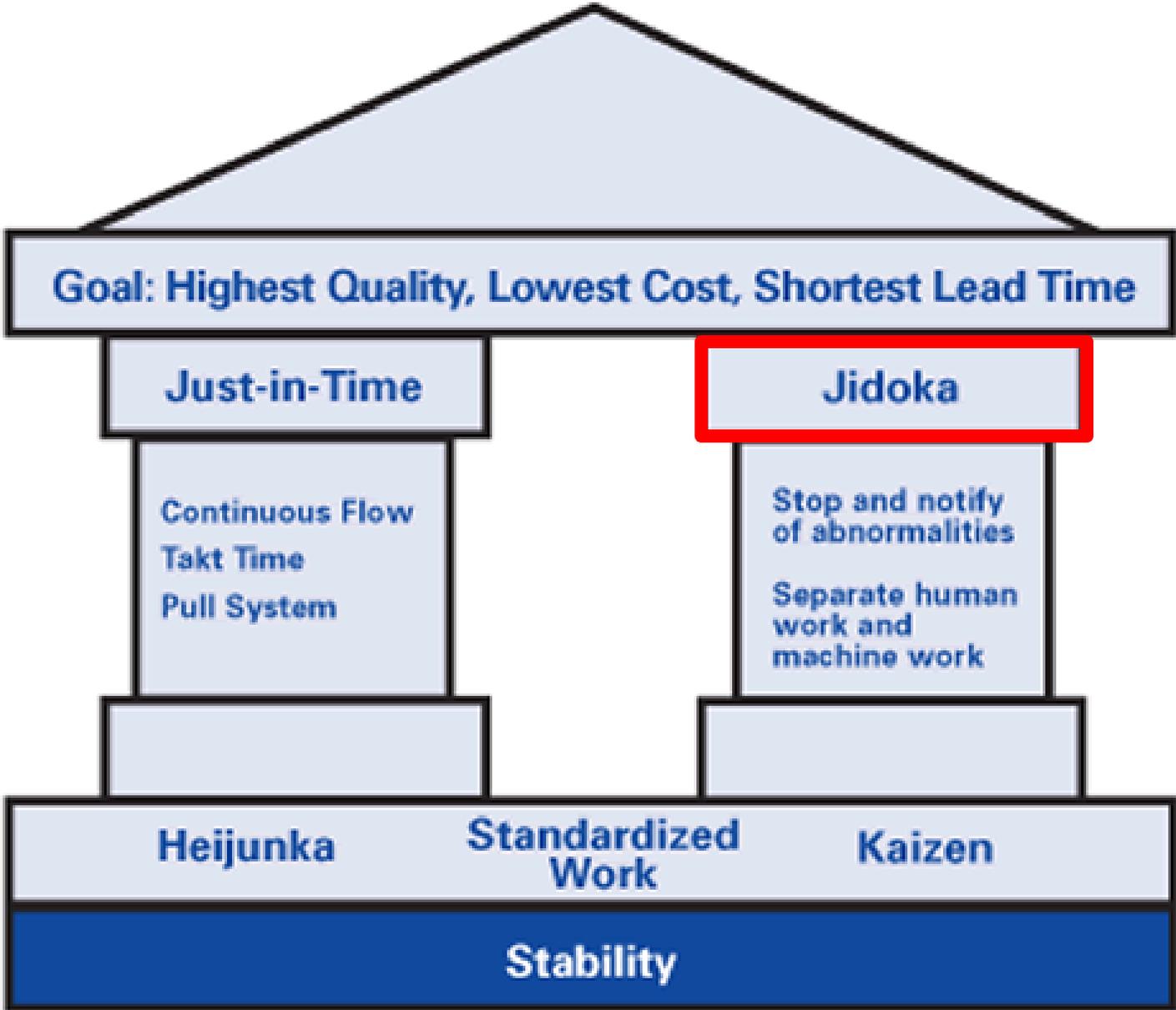


About Mark Graban



- Senior Advisor, KaiNexus (Since June 2011)
- Author, Speaker, Consultant
- Host of podcasts, including “My Favorite Mistake”
- Books Include:
 - *Lean Hospitals*
 - *Healthcare Kaizen*
 - *Measures of Success*
 - *The Mistakes That Make Us*
- B.S. Industrial Engineering, Northwestern Univ.
- M.S. Mechanical Engineering, MIT
- M.B.A., MIT





Toyota Production System "House."

Source: Lean Enterprise Institute

TPS Concept

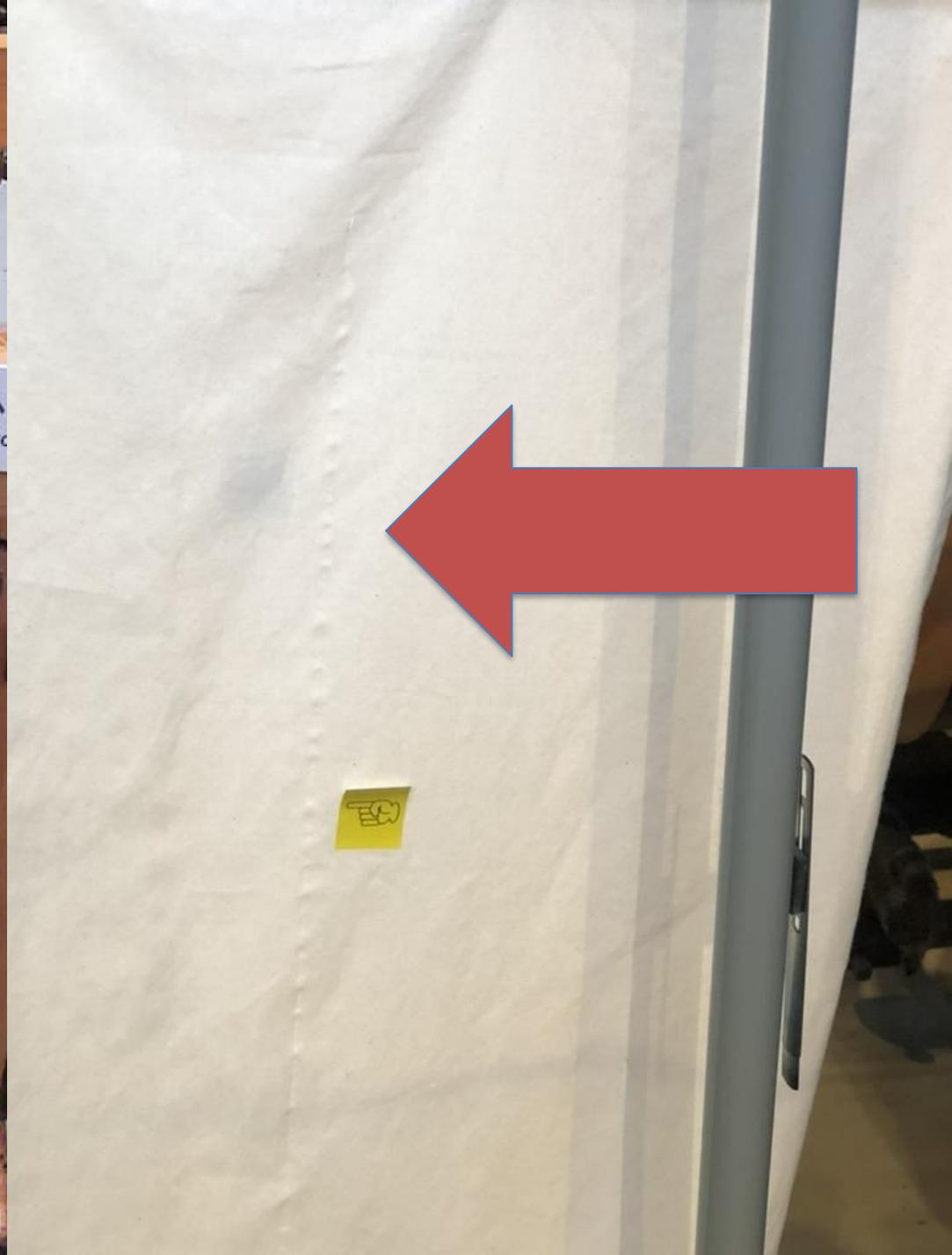
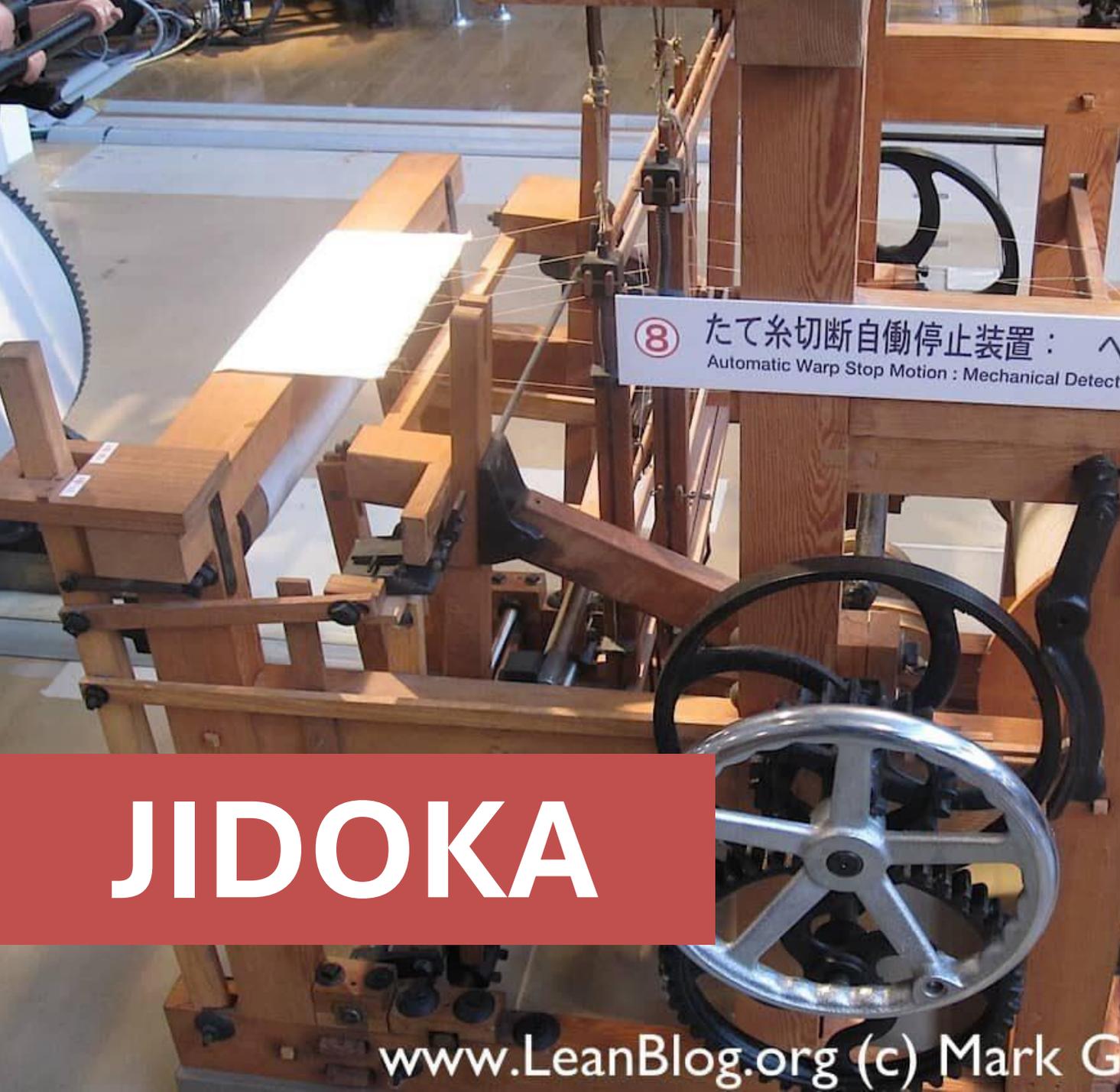
Jidoka

— Highlighting/visualization of problems —

-Quality must be built in during the manufacturing process!-

If equipment malfunction or a defective part is discovered, the affected machine automatically stops, and operators cease production and correct the problem.

For the Just-in-Time system to function, all of the parts that are made and supplied must meet predetermined quality standards. This is achieved through jidoka.



JIDOKA



- Stop automatically if anything irregular occurs
- Never produce defects



- Don't make people watch over machines constantly

POKA-YOKE

差込口
Insert here

すき間に手を入れないでください。
Do not put a hand in the slot, please.

バネ ①
サイズ: 小
色: シルバー

バネ ②
サイズ: 中
色: シルバー

POKA- YOKE

差込口
Insert here

すき間に手を入れないでください。
Do not put a hand in the slot, please.

“A poka-yoke device is any mechanism that either prevents a mistake from being made or makes the mistake obvious at a glance.”

Terminology Matters

Baka-Yoke

- Idiot-Proofing
- Fool-Proofing
- Dummy-Proofing

Poka-Yoke

- Mistake-Proofing
- Error-Proofing

Shigeo Shingo

“Defects will never be reduced if the workers involved do not modify operating methods when defects occur.”



POKA-YOKE



It's The System

“You respect people, you listen to them, you work together. You don't blame them. Maybe the process was not set up well, so it was easy to make a mistake.”

- Gary Convis, Former President, Toyota Kentucky

“Human error is inevitable. We can never eliminate it.”
We can eliminate problems in the system that make it more likely to happen.”

- Sir Liam Donaldson,
WHO World Health Alliance
for Patient safety



"It's the responsibility of leaders to provide a system in which people can be successful."

— Darril Wilburn

WARNING

**SIGNS DON'T
WORK**



WARNING

Risk of injury.
Do not reach
inside until motion stops.



CAUTION

DO NOT OPERATE
MACHINE WITHOUT
GUARDS IN PLACE

WARNING

THIS MACHINE
STARTS
AUTOMATICALLY

CAUTION

Before adjusting the rollers back
and opening the roller cage
make sure you are inside the
roller cage.

CAUTION

Before adjusting the rollers back
and opening the roller cage
make sure you are inside the
roller cage.

CAUTION

Before inserting the *Return Rack*
and starting the *Robot* make
certain there are no people *inside*
the *Robot cell*.

SETON NAME PLATE CO. 800-243-6834

LESSON

**MISTAKE-
PROOFING IS
MORE EFFECTIVE**



TYPES OF MISTAKE-PROOFING

- 1. PREVENTION**
- 2. DETECTION**
- 3. MITIGATION**
- 4. WARNINGS**

WARNING



GRILLED
SALMON

CONTAINS: FISH

PICK SOME SIDES



MITIGATION



DETECTION

Create your free account

Email address

mark@kainexuscom |

Please enter a valid email address.

Verify email >

Email address

m

Please enter a valid email address.

PREVENTION



PREVENTION



PREVENTION



CAUTION

**DON'T FORGET TO
RETURN NOZZLE
TO PUMP**









DIESEL

\$ Price per gallon (including tax)



**REGULAR
UNLEADED
GASOLINE**

\$ Price per gallon (including tax)



**MID-GRADE
UNLEADED
GASOLINE**

\$ Price per gallon (including tax)



**PREMIUM
UNLEADED
GASOLINE**

\$ Price per gallon (including tax)





For questions or any
questions, call 1-800-333-3991

Insert Card and
Remove When
Prompted

regular
24.79

SILVER
23.19

ultimate
3.109

87

89

93

WARNING

CHICAGO
VEGETABLE OIL

Invigo

DO NOT REMOVE
INSPECTED
2023-2024
KENTUCKY
DEPARTMENT OF
AGRICULTURE
It is the driver's responsibility to ensure
accuracy through observation and testing.

PLEASE REMOVE
CARD

CAUTION
**DON'T FORGET TO
TAKE YOUR CREDIT
OR DEBIT CARD**

YES	1 QZ	2 ABC	3 DEF	PAY HERE
NO	4 GHI	5 JKL	6 MNO	PAY AT WINDOW
HELP	7 PRS	8 TUV	9 WXY	DEBIT CARD BALANCE
CANCEL	CLEAR	0	ENTER	

DISCOVER VISA
MasterCard
American Express

DIESEL
\$ Price per gallon (including tax)

REGULAR UNLEADED GASOLINE
\$ Price per gallon (including tax)

MID-GRADE UNLEADED GASOLINE
\$ Price per gallon (including tax)

PREMIUM UNLEADED GASOLINE
\$ Price per gallon (including tax)
4369

CASH



WARNING



Turn off engine.



No smoking or open flames
in the fuel dispensing area.



No one under 16 may use pump.
Do not leave pump unattended when in use.



Turn off cell phones and
other electronic devices.



Discharge your static
electricity before fueling.

Before using pump, touch any metal on the car
away from the vehicle's fuel filler with bare hand.
This will discharge static electricity on your body.
Failure to fully discharge may ignite gasoline vapors.

Do not re-enter your vehicle while gasoline is pumping.
This can recharge your body with static electricity. If you
must re-enter your vehicle, discharge static electricity
again before touching the pump nozzle.

If a fire starts, do not remove nozzle. Back away
immediately and tell attendant. If no attendant is on site,
use the Emergency Shut-Off Button to stop pump.



Do not put fuel in
unapproved containers.

For Help - Call Attendant

PLZ TURN
OFF ENGINE
while Pumping
GAS

Thank's

TURN OFF ENGINE

O

MEDICAL AIR

OXYG

500
400
300
200
100
0





NITROUS OXIDE

N_2O

MEDICAL AIR

MED AIR

OXYGEN

MEDICAL VACUUM

MED VAC

WAGD

WASTE ANESTHETIC GAS DISPOSAL

OXYGEN

MEDICAL VACUUM

MED VAC

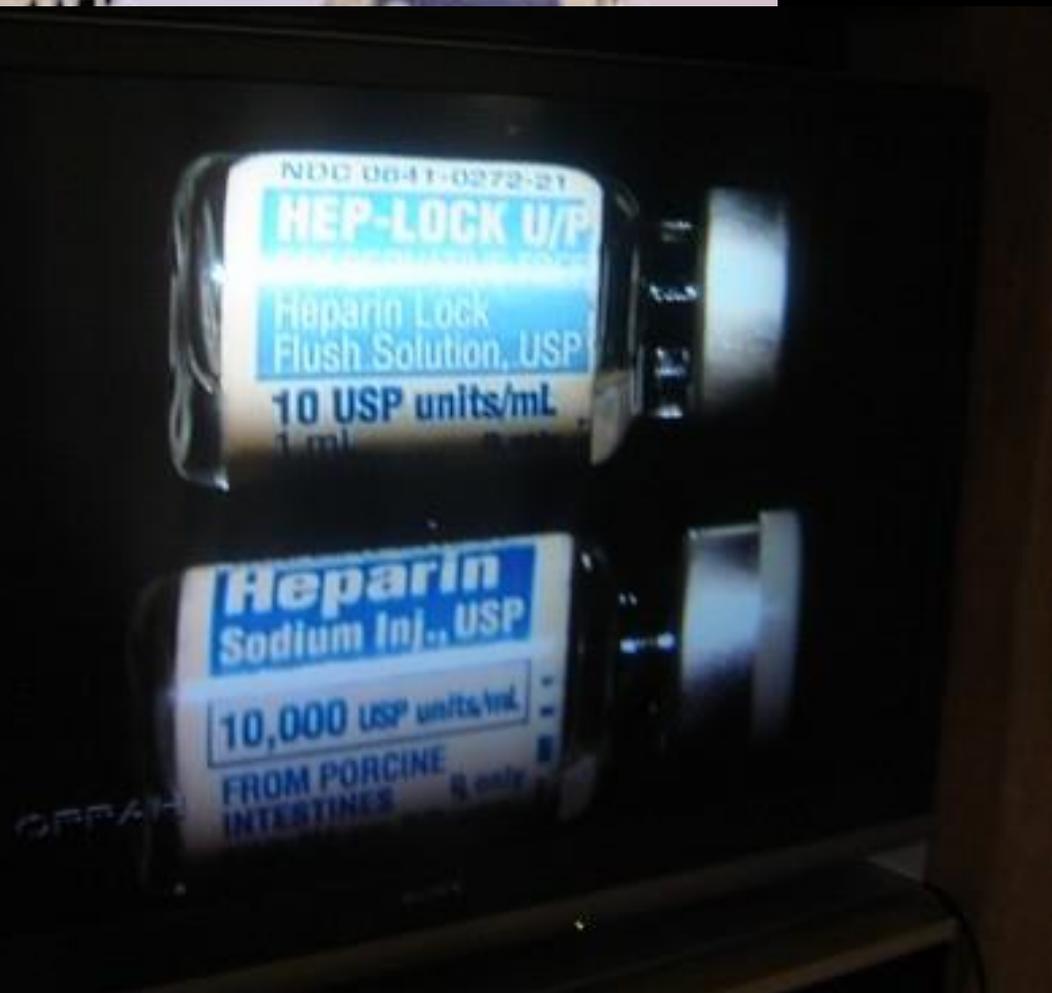
MEDICAL VACUUM

MED VAC











manual retractable safety syringe

CAUTION
DON'T OPERATE ON THE WRONG SIDE









↓ STAT ↓

CAUTION

DO NOT BUMP

CENTRIFUGE

KNOBS



0PER

SORVALL LEGEND

WARNING

**HOT LOOP
STERILIZER!**



CAUTION

WASH HANDS

BEFORE

ENTERING





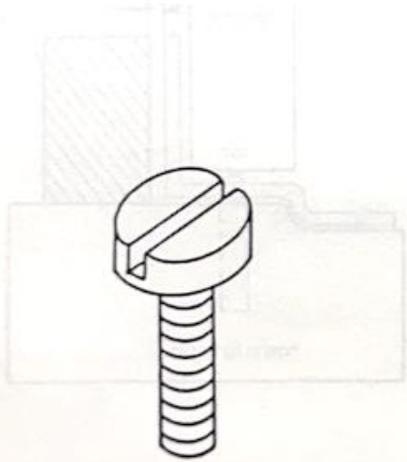




Description of Process: Plastic cassette transport covers are assembled with screws.

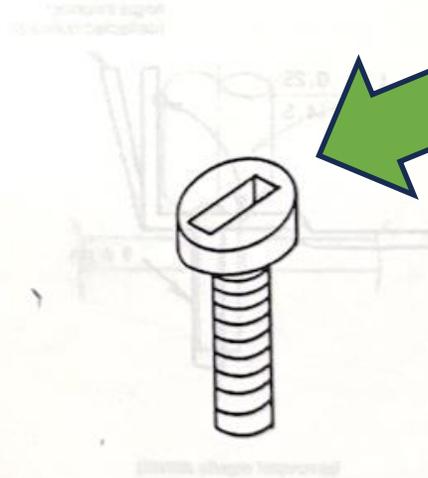
Before Improvement:

Cassette covers were frequently scratched when the screwdriver slipped out of the screw slot and slid against the plastic covers.



After Improvement:

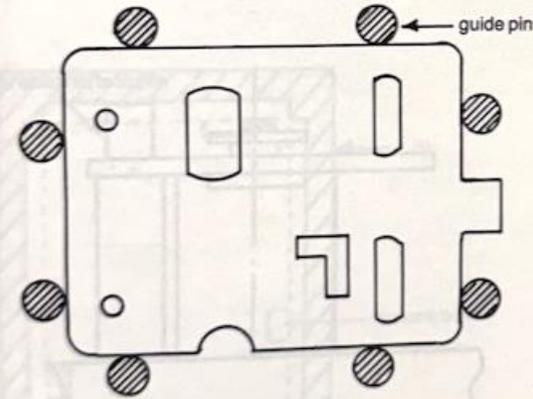
The cause of the trouble was scrutinized and a change was made in the shape of the screw slot to prevent the screwdriver from slipping. Scratches caused by the screwdriver slipping have been completely eliminated.



Description of Process: A chassis was placed in a jig for machining.

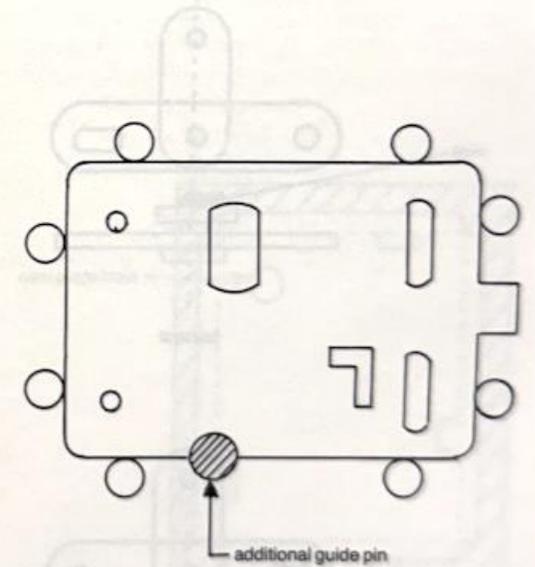
Before Improvement:

It was possible to insert the chassis in the jig backwards. Correct operation depended on the worker's vigilance.



After Improvement:

A guide pin was added, keyed to an asymmetrical feature of the chassis. This completely eliminates the danger of backward processing.





There's science behind why parents leave kids in hot cars



Morgan Hines

USA TODAY

Published 7:00 a.m. ET Aug. 2, 2019 | Updated 12:55 p.m. ET Aug. 4, 2019

More than 900 children have died in hot cars in the U.S. since 1990. Yearly, 38 kids die on average. That's one every nine days, according to [KidsAndCars.org](https://www.kidsandcars.org), which tracks hot car deaths.



Information

Rear Seat Reminder
Look in Rear Seat

Dismiss

NE



▶ [Front Psychol.](#) 2010 Nov 25;1:209. doi: [10.3389/fpsyg.2010.00209](https://doi.org/10.3389/fpsyg.2010.00209) [↗](#)

Cars Gone Wild: The Major Contributor to Unintended Acceleration in Automobiles is Pedal Error

[Richard A Schmidt](#)^{1,2,*}, [Douglas E Young](#)^{3,4}

▶ [Author information](#) ▶ [Article notes](#) ▶ [Copyright and License information](#)

PMCID: PMC3153815 PMID: [21833265](#)

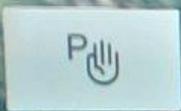
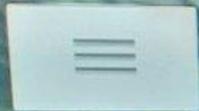
“Unintended-acceleration” automobile accidents typically begin when the driver first enters the car, starts the engine, and intends to press his/her right foot on the brake while shifting from Park to a drive gear (Drive or Reverse). The driver reports an unintended (uncommanded) full-throttle acceleration, coupled with a loss of braking, until the episode ends in a crash.

7 AM

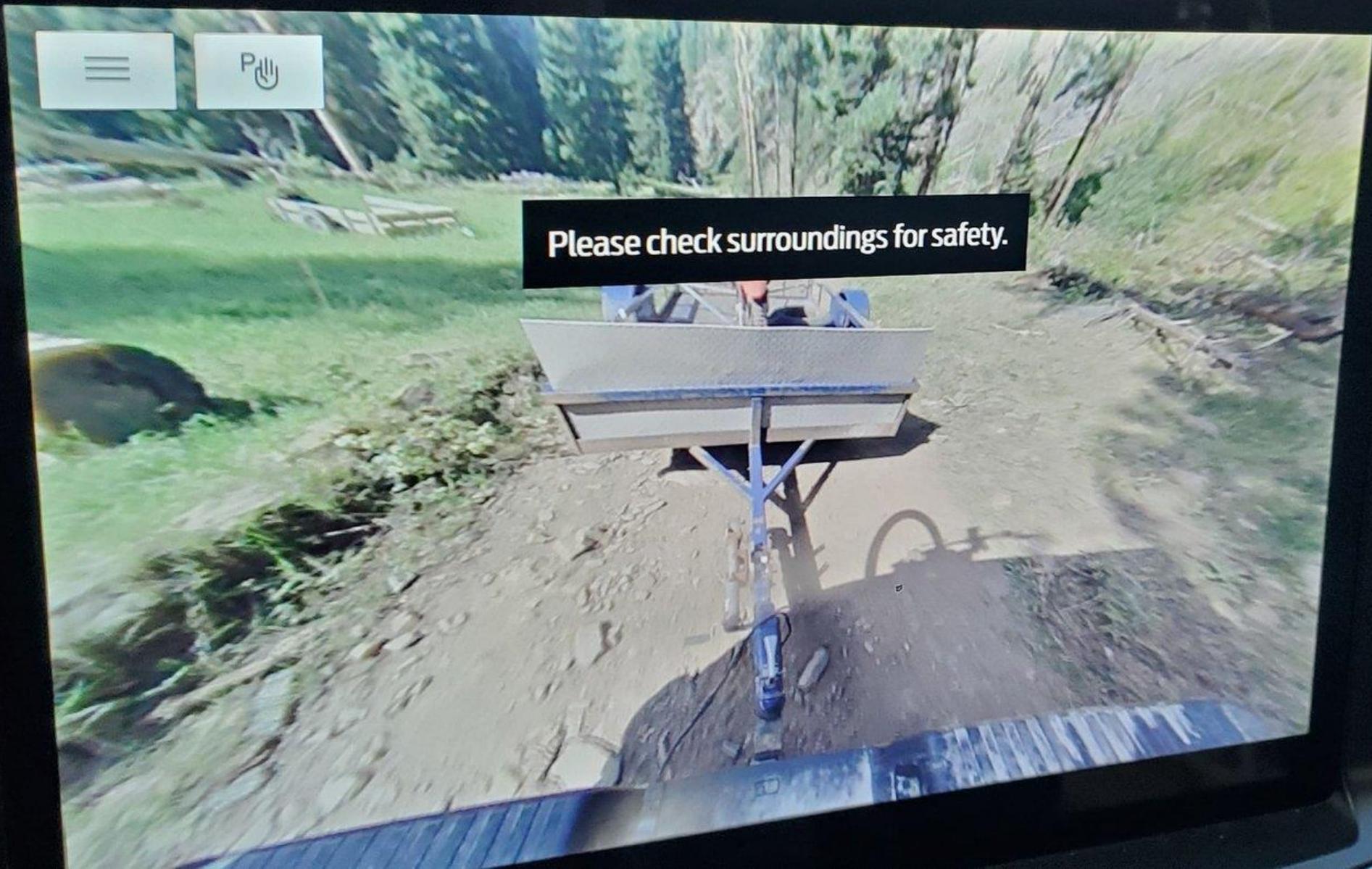
PARK



Brake and unlock before shifting



Please check surroundings for safety.



OFF



Chat



People



Raise



React



View



More



Camera



Mic



Share



Leave



End meeting for all

Leave meeting



Give feedback

Cancel



Audio



Video



Participants 3



Chat



React



Share



AI Companion



Apps



Notes



Record



More



Leave



Chat



People



Raise



React



View



More



Camera



Mic



Share



Leave



THE NEW YORK TIMES BESTSELLER

THE CHECKLIST MANIFESTO

HOW TO GET THINGS RIGHT

ATUL GAWANDE

BESTSELLING AUTHOR OF *BETTER* AND *COMPLICATIONS*

BEFORE & AFTER | webinar checklist

File Edit View Insert Format Data Tools Extensions Help

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GS18 | fx DONE | Summarize this table

	A	B	GL	GM	GN	GO	GP	GQ	GR
1			ancy Defoe	Elizabeth Chase	William Harvey	AUA: Lean Strategy Team	Karen Friedenberg	Mark Graban	Melissa Sherman
2	TASK	WHO	rch 21, 2024	April 24, 2024	May 30, 2024	June 20, 1 pm CT	July 23	Aug 21 2024	Oct 2
11									
12	Block off time on calendars (15 min. before and 15 min after)	MG	NE	DONE	DONE	DONE	DONE	DONE	DONE
13	Invite company@kainexus.com to cal event	MG	NE	DONE	DONE	DONE	DONE	DONE	NO LONGER DOING
16	Get Title and Learning Objectives	MG		DONE	DONE	DONE	DONE	DONE	DONE
17									
18	Zoom Webinar Creation	MG	NE	DONE	DONE	DONE	DONE	DONE	DONE
19	--- Check description	DY	NE	DONE	DONE	DONE	DONE	DONE	DONE

DAY OF | webinar checklist

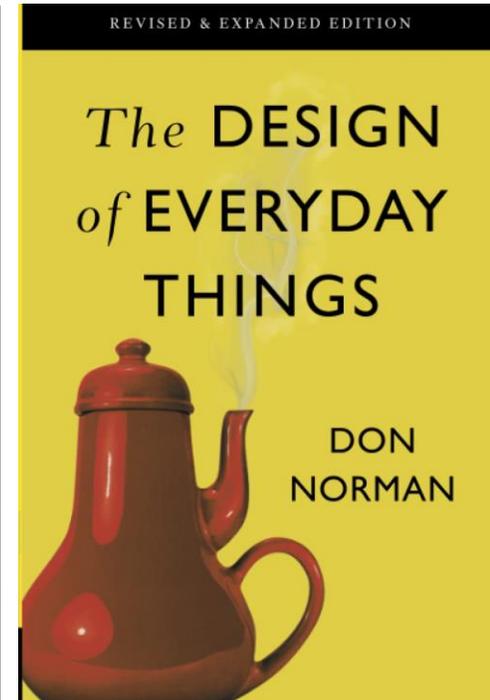
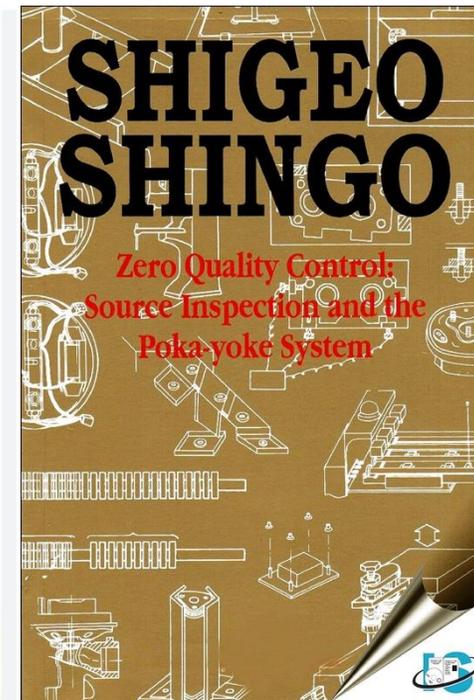
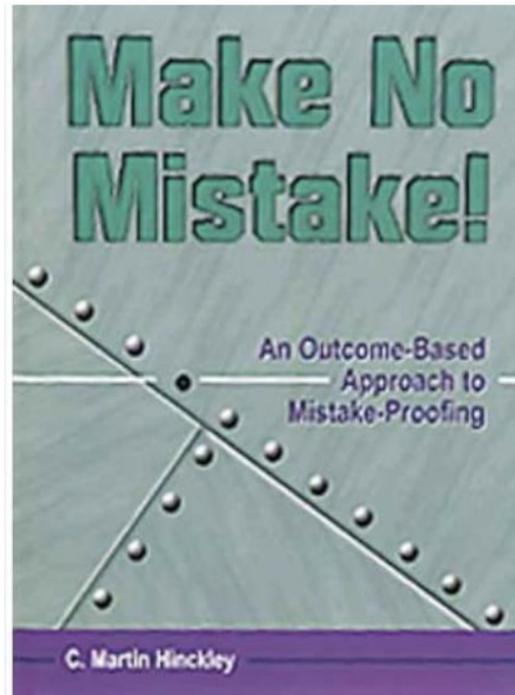
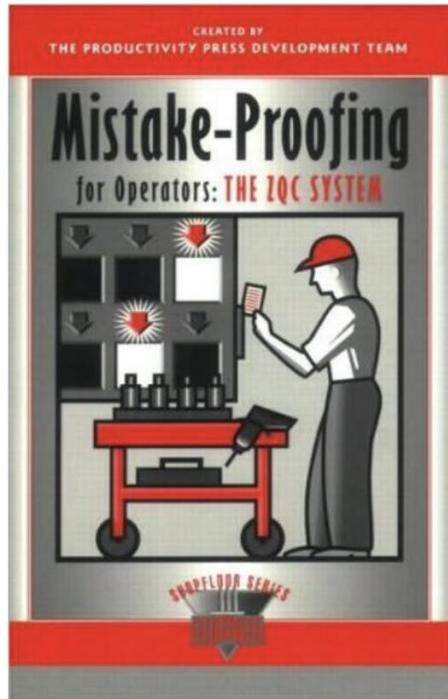
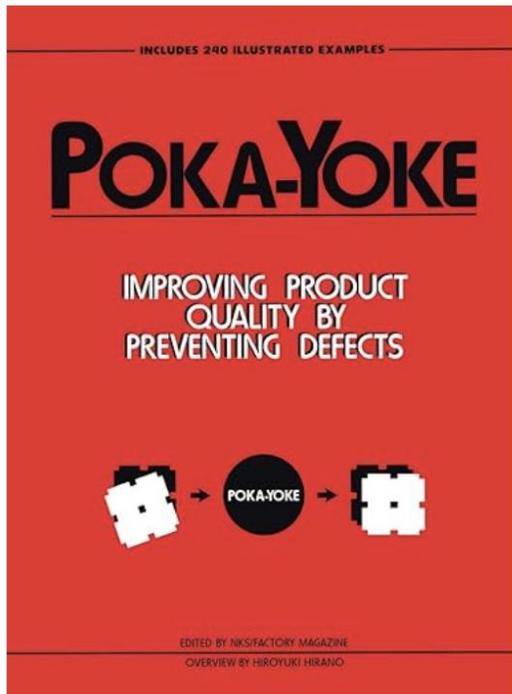
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A1 | fx TASK

	A	B	C	D
64	Click to start recording -- record to Cloud	Host	Mark	IMPORTANT - FOR AUDIENCE VIEW, RECORD TO CLOUD, NOT LOCAL COMPUTER
65				
66				
67	STARTING THE WEBINAR			
75	Make sure that cursor is in middle of screen (to avoid showing desktop via hot corner)	Host	Both	
76				
77	Make sure the intro "sound check" slide is showing		Mark	
78	3 minutes before the top of the hour, click START WEBINAR to do sound test	Host	Linda	
79	Confirm recording is going - in the Cloud	Host	Mark	IMPORTANT - FOR AUDIENCE VIEW, RECORD TO CLOUD, NOT LOCAL COMPUTER
80	"Hi, thanks for joining... we are just doing a quick sound test for a few minutes until we start for real at the top of the hour"	Host	Linda	
81	Ask the presenter, "[Presenter], how are you today?" - where are you located?	Host	Linda	
83	Say, "We always like to know where attendees are located... please enter in the Chat area."		Linda	
84	Read some of the locations out loud and acknowledge places out loud	Host	Both	
85	Confirm it's recording	Host	Both	
86	At the top of the hour, say "we'll get started formally in a second" and leave a few seconds pause (this helps edit the recording)	Host	Linda	
87	Share slides with audience -- click and drag PDF into Zoom chat - share with ALL ATTENDEES	Host	Mark	
88	Welcome to today's webinar titled "TITLE HERE" I'm [name], [title] for KaiNexus. Today, I'm very happy to be joined by [PRESENTER NAME(S)], as our presenter(s) today.	Host	Morgan	

More Examples



MistakeProofing.com

Register or get notified of future webinars: www.KaiNexus.com/webinars

KaiNexus Webinars

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Webinars On Demand



NEXT WEBINAR:

What PE Teachers and PEX Professionals Have in Common

March 5 — 1 pm ET

Shawna Forst

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6 Solutions for Overcoming Improvement Challenges

June 1, 2023

For organizations of all types, continuous improvement is vital for building a culture of innovation, remaining competitive, ensuring...



What Is Continuous Improvement? Everything You Need to Know to Improve Your Workplace

May 31, 2023

Continuous improvement is not a one-time project or initiative; it is an ongoing continuous improvement mindset and culture that should be...



Understanding the Importance of Lean Business Process Management Software

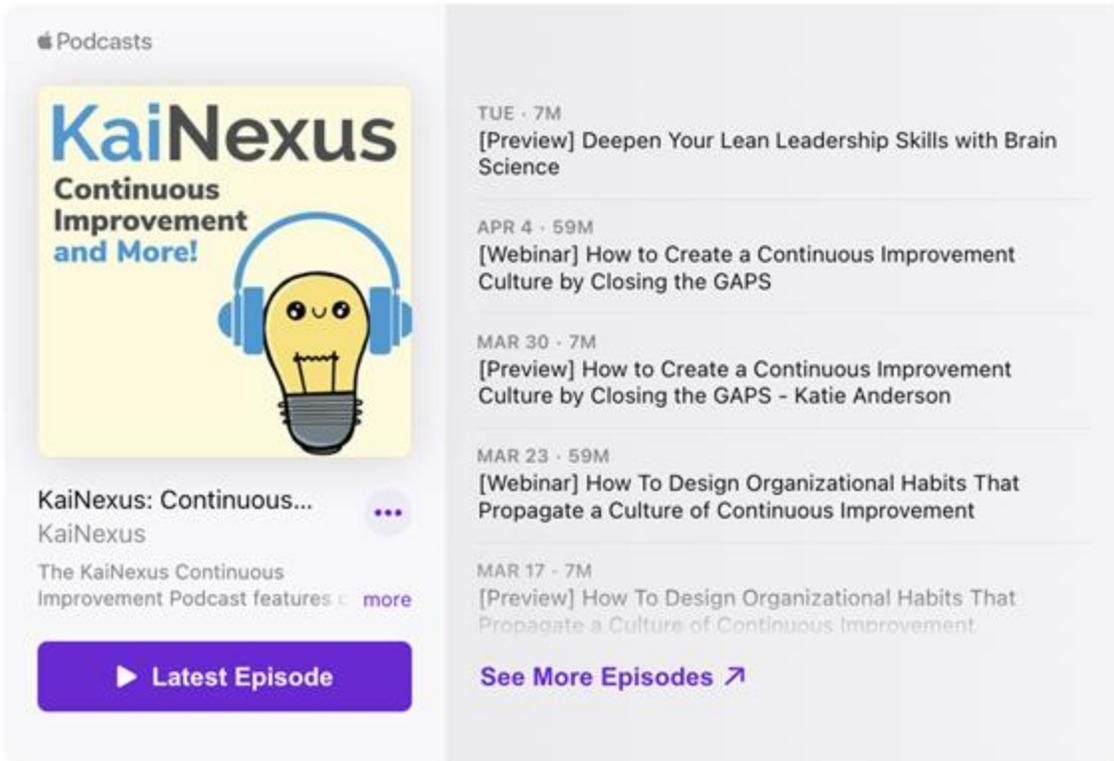
May 25, 2023

[Kainexus Logo](#)

Companies constantly seek ways to improve process efficiency and reduce waste in today's rapidly changing business landscape. One approach...



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 - Stitcher
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Q&A Time

- **More Info:** www.MistakeProofing.com
- **Email:** Mark@KaiNexus.com
- **Podcast:** MistakesPodcast.com
- **Book:** MistakesBook.com

