

Mistake Proofing and Poka Yoke

Superfactory Excellence Program™
www.superfactory.com

Disclaimer and Approved use

■ Disclaimer

- The files in the Superfactory Excellence Program by Superfactory Ventures LLC ("Superfactory") are intended for use in training individuals within an organization. The handouts, tools, and presentations may be customized for each application.
- THE FILES AND PRESENTATIONS ARE DISTRIBUTED ON AN "AS IS" BASIS WITHOUT WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED.

■ Copyright

- All files in the Superfactory Excellence Program have been created by Superfactory and there are no known copyright issues. Please contact Superfactory immediately if copyright issues become apparent.

■ Approved Use

- Each copy of the Superfactory Excellence Program can be used throughout a single Customer location, such as a manufacturing plant. Multiple copies may reside on computers within that location, or on the intranet for that location. Contact Superfactory for authorization to use the Superfactory Excellence Program at multiple locations.
- The presentations and files may be customized to satisfy the customer's application.
- The presentations and files, or portions or modifications thereof, may not be re-sold or re-distributed without express written permission from Superfactory.

- Current contact information can be found at: www.superfactory.com

Outline

- What is Mistake Proofing?
- Everyday Examples
- Effectiveness & ROI
- Error Proofing and SPC
- Inspection Techniques
- Types of Poka Yokes

What is Mistake Proofing?

- The use of process or design features to prevent errors or their negative impact.
- Also known as ***Poka yoke***, Japanese slang for “avoiding inadvertent errors” which was formalized by Shigeo Shingo.
- Inexpensive.
- Very effective.
- Based on simplicity and ingenuity.

Everyday Examples

Which dial turns on the burner?



Stove A

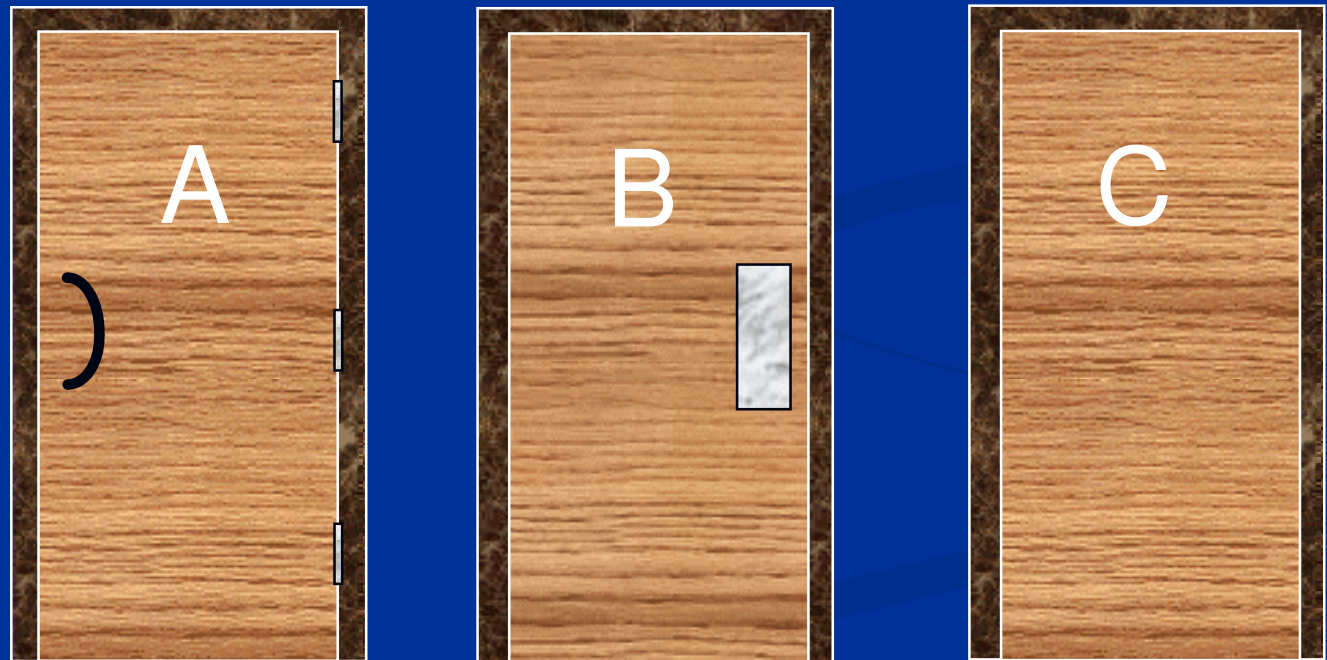


Stove B

Everyday Examples

How would you operate these doors?

Push or pull? left side or right? How did you know?



Everyday Examples

3.5 inch diskettes cannot be inserted unless diskette is oriented correctly. This is as far as a disk can be inserted upside-down. The beveled corner of the diskette along with the fact that the diskette is not square, prohibit incorrect orientation.



Fueling area of car has three error-proofing devices:

1. insert keeps leaded-fuel nozzle from being inserted
2. tether does not allow loss of gas cap
3. gas cap has ratchet to signal proper tightness and prevent overtightening.



New lawn mowers are required to have a safety bar on the handle that must be pulled back in order to start the engine. If you let go of the safety bar, the mower blade stops in 3 seconds or less.



Everyday Examples

Whose signature is required?

Before:

AUTHORIZING SIGNATURES

Operations Engineering Manager: _____ Date : _____

EM/EQA Supervisor: _____ Date : _____

Manufacturing Engineer: _____ Date : _____

Other (As Required): _____ Date : _____

Operations Manager: _____ Date : _____
(MED. or HIGH RISK ONLY)

EQA Manager: _____ Date : _____
(MED. or HIGH RISK ONLY)

After:

Required Authorizing Signatures	Release/Audit update per SOP <or> Experiment Request	ECO Implementation	Part Reconditioning per SOP 12-FP-23-000	Non-ECO associated PCN RISK: VERY LOW, LOW (1,2)	Non-ECO associated PCN RISK: MODERATE, HIGH (3,4)	DATE
Originator						
CCB Eng. Rep.						
Ops. Supervisor*						
QA Supervisor*/QE						
Prod. Ops. Manager						
QA Manager						
Manuf. Eng or Other ex. CTS (as required)						

* Supervisor of area affected by the change.

Evidence of the Effectiveness

- **AT&T Power Systems** is first US manufacturer to win the Deming prize. Average outgoing defects reduced by 70%
- A washing machine drain pipe assembly line produced 180,000 units without a single defect (6 months).
- **TRW** reduced customer PPM's from 288 to 2.
- **Federal Mogul**: 99.6% less customer defects and 60% productivity increase
- **DE-STA-CO**: reduced omitted parts 800 to 10 ppm with a 15-30% productivity increase

Source: Productivity Inc. and Shingo prize profiles

Evidence of the Effectiveness

Cooper Automotive:

- 95% less defects than nearest competitor
- 75% less injuries
- 99.6% less customer defects (13 ppm)
- 88% in-plant defect reduction
- 70% less warranty cost
- 89% scrap reduction (0.7%)
- 60% productivity increase