

Michel Baudin's Blog

Ideas from manufacturing operations

Poka-Yoke at Toyota: the Current State



Mikiharu Aoki's "All About Poka-Yoke in Toyota Factories" (2012)

Mikiharu Aoki kindly sent me his 2012 book on mistake-proofing (Poka-Yoke) in Toyota factories. I had asked him for it out of curiosity about new developments in this field.

The classics on Poka-Yoke are Shigeo Shingo's [Zero Quality Control](#) (1986) and Productivity Press's [big red book](#) (1987), both of which are useful but leave you hungry for more examples that do not date back to the 1960s and 70s.

In [Make No Mistake](#) (2001) Martin Hinckley reused many of the same examples, but added a few using more electronics, discussed the relationship between mistake-proofing and statistical methods, and included a directory of suppliers for tools and devices. I spot-checked the websites of a few of them and, 12 years after publication of the book, found they were all still around.

While [Taiichi Ohno](#) and [Shigeo Shingo](#) were men of my grandparents' generation, Mikiharu Aoki is my contemporary. He is not a founding father of the Toyota Production System, but he has worked in its modern incarnation for 26 years before becoming a consultant. He has written several [books](#) — only available in Japanese — and all but one with "Toyota" in the title.

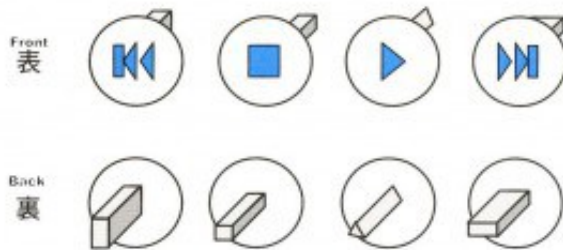
Part I is a discussion of the steps needed to implement Poka-Yoke; Part II, 72 actual examples explained through conceptual diagrams and cartoons.

Part I, about 1/3 of the book, first discusses 5S, standard work, process capability, and one-piece flow as prerequisites to mistake-proofing. It then distinguishes the categories of mistake-proofing devices, such as the ones that physically prevent mistakes versus those that prevent defectives from escaping to the next process. It

describes the use of Andons to trigger responses to problems detected by mistake-proofing, and expresses a preference for devices that involve direct, mechanical contact with work pieces over sensors and electronics, because their operation is visually obvious.

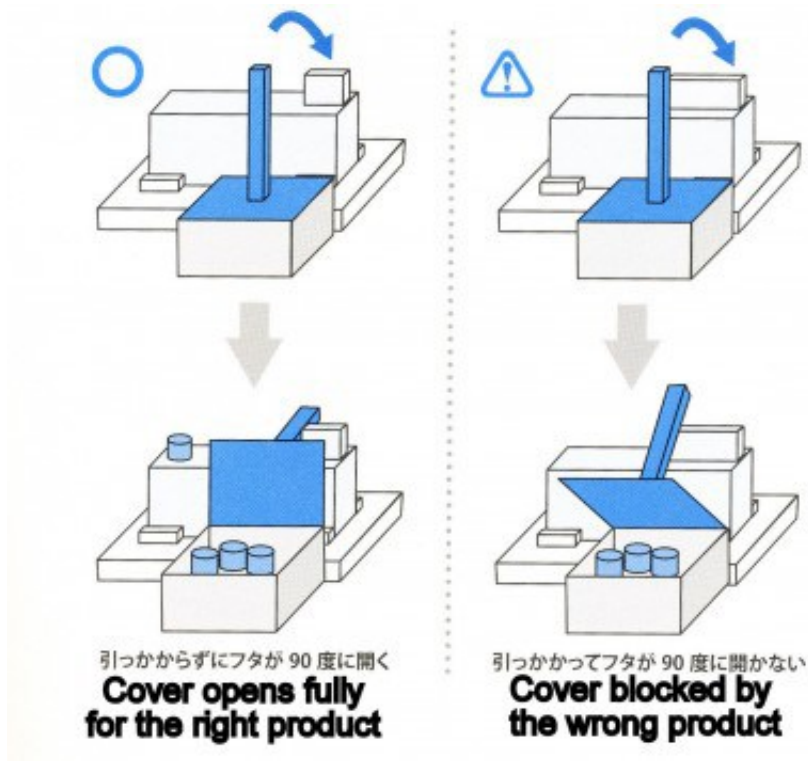
On the other hand, I did not see recommendations on how you organize the implementation of mistake-proofing, monitor progress, and make sure that the devices do not deteriorate or fall out of use over time. This is not covered either in any of the other books I have seen on the subject.

The examples in Part II are more similar to those in the older books than I expected. The tangs used to prevent mounting the button in the wrong position on a music player control panel are a classic, and the same method is used in my HP inkjet printer to prevent mounting ink cartridges in the dock for a different color.



Mistake-proofing assembly of music player buttons

In the following case is also consistent with the older Poka-Yokes: the outer dimensions of products are used to tell them apart and make different sets of parts available for assembly.



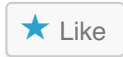
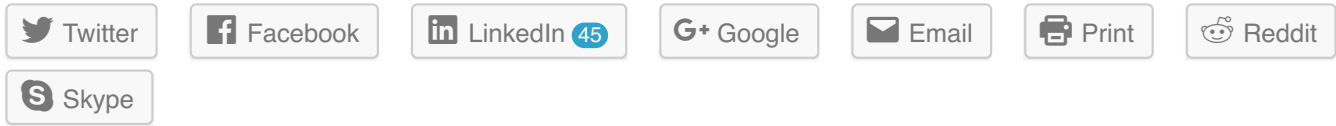
Bin cover Poka-Yoke

Clearly, the way it works, and whether it works, is obvious. By a method that relies on differences in the outer dimensions of a product is only applicable where such differences exist. With car engines, they do; with computers, they don't, and many different configurations of the same product are mounted in the same chassis. In such a context, you have to resort to [bar codes](#), [QR codes](#), or [RFID tags](#) and the computer systems that go with them.

I expected to see more use of this kind of technology in current Poka-Yokes, but I understand that Aoki's book is about car manufacturing and that you want, as much as possible, the devices to be invented on the shop floor by production people.

Among Aoki's books, the one *without* Toyota in the title is called "All about car factories" (自動車工場のすべて, November, 2012), and its purpose is to explain in an integrated manner both the production process and production control sides of car making. Aoki also included it in his package to me, but I have not had a chance to look at it yet. I will keep you posted.

Share this:



Be the first to like this.

Like this:

Related

[Yet Another Post About Poka-Yoke](#)

August 8, 2013

In "Technology"

[What Poka-Yoke Are And Are Not, And How To Sustain Them](#)

November 30, 2015

In "Technology"

[Using Poka-Yoke Techniques for Early Defect Detection | Accelerate Management | Jennifer R.](#)

November 8, 2014

In "Blog clippings"

March 10, 2013

 **1** Reply

[« Previous](#)

[Next »](#)

Leave a Reply

Your email address will not be published. Required fields are marked *

Comment

Name

*

Email

*

Website

Post Comment

☐ Notify me of follow-up comments by email.

☐ Notify me of new posts by email.

Pingback: [More on Poka-Yoke | Michel Baudin's Blog](#)

Search

Lean Leadership Summit 2016

About the author



[Michel Baudin](#)

Fascinated with the art of making things, Michel is working to improve it. Trained in engineering and applied math, he got his feet wet in production in the early 1980s, and later apprenticed under master Japanese consultant Kei Abe for eight years, starting his own group in 1996. He has been consulting since 1987, teaching courses and writing technical books. He intends to keep working with like-minded partners in the Takt Times Group and contributing improvements in the management and technology of manufacturing as a consultant, trainer, and writer.

Personal Links

[The takt times group](#)

[Blog about manufacturing](#)

[Press and blog clippings about Lean](#)

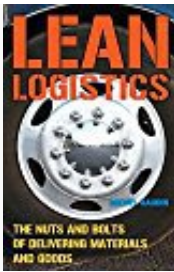
Verified Services

[View Full Profile →](#)

My books



[Shopping Cart](#)



[My Bookstore](#) | [Shopping Cart](#)

To find out more:

Name (required)

Email (required)

Phone number

Website

Your question (required)

Submit »

Videos



"Introduction to Lean 2013"
by Michel Baudin

Follow Blog via Email

Enter your email address to follow this blog and receive notifications of new posts by email.

Join 2,494 other subscribers

Follow

Most popular posts and pages

[What is Karakuri Kaizen?](#)

[Safety Stocks: Beware of Formulas](#)

[Why "Smart" part numbers should be replaced with keys and property lists](#)

[Deming's Point 3 of 14 - Cease dependence on inspection to achieve quality...](#)

[Why 5S fails](#)

Recent Posts

[Is SPC Obsolete? \(Revisited\)](#)

[Now It's Humans Assisting Robots | Sheelah Kolhatkar | The New Yorker](#)

[Why do we call it "value stream"?](#)

[How Hard Is It To Create Flow?](#)

[More Sophisticated Graphics In Today's New York Times](#)

Categories

[Announcements](#)
[Answers to reader questions](#)
[Asenta selection](#)
[Blog clippings](#)
[Blog reviews](#)
[Book reviews](#)
[Data science](#)
[Deming](#)
[Events](#)
[History](#)
[Information Technology](#)
[Laws of nature](#)
[Management](#)
[Metrics](#)
[News](#)
[Organization structure](#)
[Personal communications](#)
[Policies](#)
[Polls](#)
[Press clippings](#)
[Technology](#)
[Tools](#)
[Uncategorized](#)
[Web scrapings](#)

Follow me on Twitter

[My Tweets](#)

My tags

[5S](#) [Automation](#) [Autonomation](#) [Cellular manufacturing](#) [Continuous improvement](#) [Deming](#) [ERP](#) [Ford](#)
[Government](#) [Health care](#) [industrial engineering](#) [Industry 4.0](#) [Information technology](#) [IT](#) [jidoka](#) [Kaizen](#)
[Kanban](#) [Lean](#) [Lean assembly](#) [Lean Health Care](#) [Lean implementation](#) [Lean Logistics](#)
[Lean management](#) [Lean manufacturing](#) [Logistics](#) [Management](#)
[Manufacturing](#) [Manufacturing engineering](#) [Metrics](#) [Mistake-Proofing](#) [Poka-Yoke](#) [Quality](#)
[Six Sigma](#) [SMED](#) [Standard Work](#) [Strategy](#) [Supply Chain Management](#) [Takt](#) [Takt time](#) [Toyota](#) [Toyota](#)
[Production System](#) [TPS](#) [Training](#) [VSM](#) [WCM](#)

Michel Baudin's feed

 [RSS - Posts](#)

[View Full Site](#)

Proudly powered by [WordPress](#)

Follow

Follow Michel Baudin's Blog

Get every new post delivered to your Inbox

Join other followers:

[Sign me up!](#)