Industry Tour Discussion Points

- 5S Audits
- Andon Lights
- Quality at the Source
- Point of Use Storage
- Distribution of Standardized Work
- FIFO lane arrangement of Kanban cards
- Production Scheduling/Heijunka Box
- Controlled Inventory of Purchased Parts
- Cellular Layout
- Quick Changeover → Single Minute Exchange of Die (SMED)
- Ongoing Kaizen Projects
Continuous Cost Reduction Through The Elimination of Waste

5S / Visual Management

Level Loaded Production

Continuous Cost Reduction Through The Elimination of Waste

Just In Time

Operate with the minimum resource requirements consistently produce

• Just what is needed
• Just the required amount
• Just where it is needed
• Just when it is needed

Just In Time

Continuous Improvement (KAIZEN)

• Problem solving
• Eyes for waste
• Go to the gemba

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PEOPLE & TEAMWORK

• Decision making
• Common goals
• Cross-training
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Built in Quality

In station quality: never pass a bad part onto the next process.

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• Automatic line stops
• Person-machine separation
• Make problems visible: (visual controls)
• Root cause problem solving: (5 whys)

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Best Quality, Cost, Delivery, Safety, Defects, and Morale (QCSDM)

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WASTE REDUCTION

Eyes for waste

Go to the gemba

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Level Loaded Production
Poka-Yoke

- technique of preventing mistakes (error-proofing) by
  - designing the manufacturing process, equipment, and tools so that an operation literally cannot be performed incorrectly
  - error proofing the design
8. Design for end-to-end symmetry
9. Design for symmetry about axis of insertion

(a) The assembly fits together only one way.
(b) Two possible directions of insertion.
(c) 360° rotational symmetry.
Chaku-Chaku Line

- Series of machines that each have autoejection
  - Enables worker to walk line, insert part, press start, and pickup next unloaded part
- Japanese term that means load-load.
  - Reference to process the operator follows-loading machine after machine
  - No need to unload.
- Often comprised of right-sized machines to account for rapid pace
- Lean Tools Needed for a Chaku-Chaku Line:
  - Hanedashi (autoejector)
  - Jidoka
  - Andon lights
  - Standard Work
  - Kanban
  - Visual management/5S
  - Kaizen
  - Right-sized machines (single function and compact)
Further Questions

• Now that you’ve read some of the quality book and had some tours...
  – What is product lifecycle and where did you see reference to that concept on the tours?
  – How did/would design of the product influence lean implementation?
  – Did you see any instances where human judgment played a significant role in determining quality? Why?