

CHAPTER 3

MF150 – PRINCIPLES OF SAFETY

Intel

- ▶ INTEL – Chandler, AZ
- ▶ <http://www.youtube.com/watch?v=aWVywhzuHnQ>
- ▶ Microprocessors – “computer chips”
 - Tiny, fragile (size of dime = 5.5 million transistors)
 - Expensive! One small mistake could cost millions of dollars
- ▶ Clean Rooms
 - HEPA filters, temperature, humidity
 - Bunny suits (hood, goggles, gloves, booties)
 - Everything is white

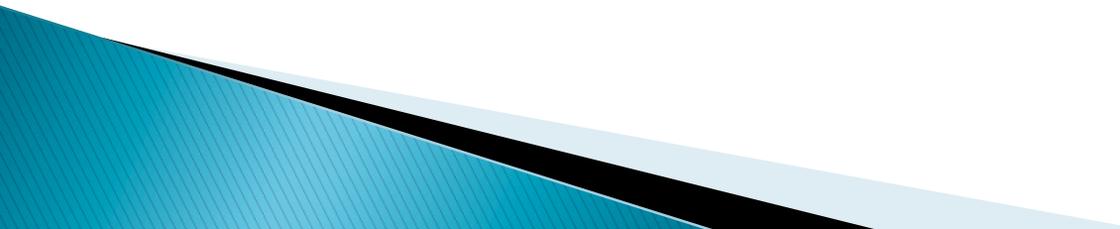
Intel

- ▶ Highly skilled workforce
 - ▶ Constant flow of information
 - ▶ Many quality checks throughout process
 - ▶ Team members have to constantly monitor lot progress, quality levels, machine performances
 - ▶ “Hot Lot” – Rush order of product that takes immediate priority (customer request, recovery for quality loss, etc)
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Intel

- ▶ Constant balance: keeping machines running while fitting in time for maintenance, calibration, cleaning.
 - ▶ Front line people can stop the line (the cost to manufacture scrap is extremely high)
 - ▶ There is little or no chance to 'repair' defective products (can downgrade).
 - ▶ Use of computers to monitor batch quality & show trends.
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Intel

- ▶ Early production – manual dexterity
 - ▶ Now – Highly automated – 2-yr degree req'd
 - ▶ #1 Skill – Communication!
 - ▶ Intel tries to give everybody as much information as possible (no more 'only need to know')
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Intel

- ▶ Attention to detail
- ▶ Everyone **MUST** follow Standard Operating Procedures (SOP's)

Harley-Davidson

- ▶ Kansas City, MO
- ▶ <http://www.youtube.com/watch?v=ThjYcG9H3Ys>
- ▶ QUALITY – The product meets or exceeds the expectations & the needs of the customer.
 - Premium brand (customers expect the best)
 - Each cycle undergoes >200 quality checks
 - They even double-check work done by robots.
 - Quality Audit
 - An independent review versus standard
 - H-D selects a couple cycles each day for close scrutiny.
 - The audited cycles & the final score/report are parked in the center of the cafeteria each day.

Harley-Davidson

- ▶ Union & Management Cooperation
 - Two offices, top floor, separated by glass – plant mgr & union leaders
 - Total trust
- ▶ Self-Managed work teams
 - From the beginning – philosophy was to give decision making to frontline workers. Fosters ownership.
 - Manage their budget
 - Make work assignments
 - Ensure they meet deadlines
 - Interview potential team members
 - Must be willing to take on responsibility
 - **Source of most problems? COMMUNICATION**

Harley-Davidson

- ▶ **Customization** – the process of building products to meet the specific needs of individual customers/groups of customers.
 - Three main types of motorcycles
 - Each comes in a total of 900 variations
 - Each bike includes a “traveler” (a specification list that travels with the cycle throughout the production process).
 - Workers must continually check the traveler to ensure they are adding the right parts to the bike.
- ▶ The motorcycle is assembled in about 43 minutes.

Union Carbide

- ▶ Hahnville, LA
- ▶ Chemical Plant – Butanol
- ▶ Highly automated with relatively few workers
- ▶ **EMPOWERMENT**
- ▶ Decreased number of mgmt, Increased worker responsibility & ownership
- ▶ Highly independent teams
 - Plan their own daily job assignments
 - Have a say in each other's compensation
 - Manage their own budget
 - Use their own company credit card for needs
 - A lot of cross training

Union Carbide

- ▶ Safety mentality
 - Chemical plant – Many potential dangers
 - Flammables
 - High process temperatures
 - Ladders & stairs
- ▶ Manage the budget
 - Keep overtime low
 - Order their own supplies
 - As a result – employees are careful about costs

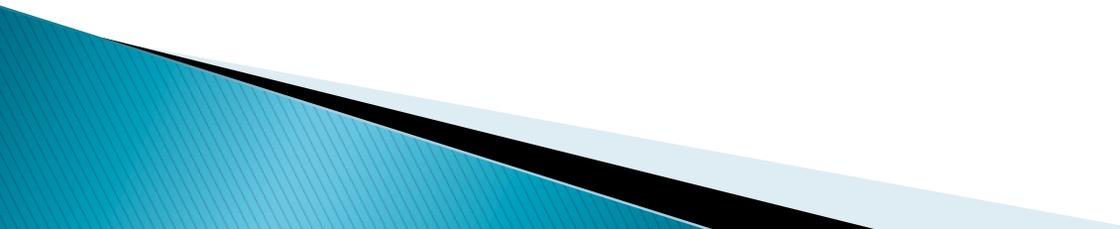
Union Carbide

- ▶ Performance Reviews & Feedback
 - Peer reviews
 - During review, no negative feedback can be given that has not already been discussed with the employee.
 - Feedback must be SPECIFIC to be useful
 - ▶ Team Roles
 - Rotate roles
 - Builds personal skills in multiple areas
 - Encourage direct resolution of employee conflicts
 - ▶ Empowerment Teams
 - Additional cross functional teams – quality, safety, customer service, etc.
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American Licorice

- ▶ <http://www.youtube.com/watch?v=AVAnYMVRmdl>
- ▶ Allsip, IL
- ▶ Company considered move to Mexico because mfg costs were not competitive.
- ▶ Decided to try to change the plant:
 - Teams
 - Increased worker responsibilities
 - Worked with the unions

American Licorice

- ▶ Production workers began doing in-line quality checks routinely
 - **SPECIFICATIONS** – a detailed description of the acceptable limits allowed for different aspects of a product or process.
 - ▶ They also began doing routine maintenance of production machines.
 - ▶ The transition from individuals to teamwork was challenging for many.
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American Licorice

▶ LEAN MANUFACTURING

- A system that identifies & eliminates all activities that do not add value to the product.
 - #1 – Leader Standard Work
 - #2 – Visual Controls
 - #3 – Daily Accountability Process
 - #4 – Leadership Discipline

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