



**Manufacturers Alliance Seminar**  
**Getting to the True Root Cause**

Practical experiences from practitioners on how to prevent the quick fix and get to the real fix.

**Sportech Inc.**

**Helen Swanson, Director of Quality**



BETTER IDEAS. BETTER  
SOLUTIONS



## WHO WE ARE

### OEM Exclusive Product Development Partner

- Focused on Powersports, Golf and Turf, and Agricultural platforms
- Committed to OEM exclusivity – we don't compete in the aftermarket
- Partner level customer performance, top ranked OEM supplier

### Business Model

- We drive OEM Value Creation through management and design of accessory product portfolios from concept through production
- Our OEM Caliber Industrial Design team initiates projects, we mature the design with in-house engineering & deliver a full product portfolio
- We commonly support product lines where accessories are desired but the internal customer design bandwidth is limited



# WHO WE ARE

## Culture

- Faith-led organization - Prioritize community involvement and “people over parts” – Chris Carlson, CEO
- 205,000 sq. ft. headquarters in two buildings in Elk River, MN
- 310 full-time employees

## Industry Credibility

- 1,000,000 units of collaboratively designed OEM product shipped each year
- We are ISO 9001:2015 certified and production certified at all our OEM customers
- Annually generate over \$250M OEM accessory sales



## CORE MANUFACTURING

CAB SYS



THERMOFORMING



WINDSHIELD SYSTEMS



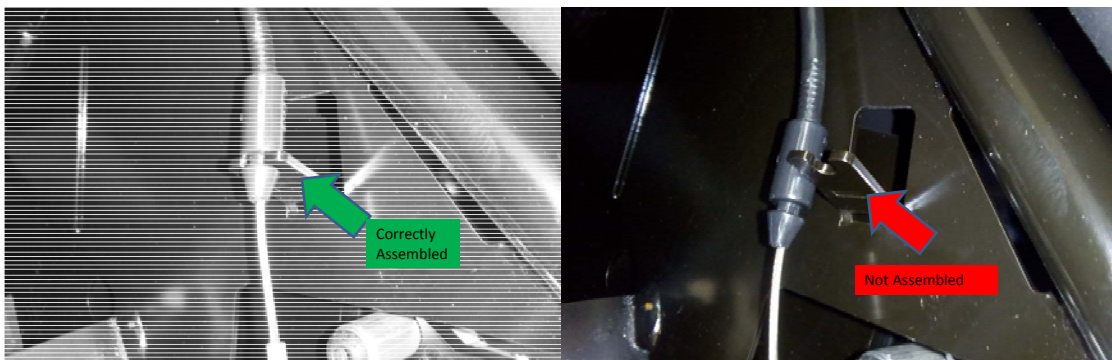
DRAPE FORMING



# Getting to True Root Cause

## 4 Common Mistakes

### The Problem



# The 5 Whys

- |  |   |  |
|--|---|--|
| 1. Why was the cable not assembled correctly?                            | ➔ | 1. Cable is difficult to snap into place.                                      |
| 2. Why is the Cable is difficult to snap into place?                     | ➔ | 2. Design requires a tight fit and the operators don't always seat it properly |
| 3. Why don't the operators always seat it properly?                      | ➔ | 3. They get tired  |
| 4. Why do they get tired   | ➔ | 4. Operators are performing the same function for 10 hours a day               |
| 5. Why are Operators are performing the same function for 10 hours a day | ➔ | 5. No operator rotation  |

## Corrective Action

- Institute operator rotation every 4 hours



## Blaming the Operator

- No/poor training on the process
- Not understanding importance of following the process
- Not believing the process is good enough
- Pressure to skip steps to save time (actual or perceived)
- Company Culture
- Complexity

## The 4 Whys

- |  |   |  |
|--|---|--|
| 1. Why was the cable not assembled correctly?          | ➔ | 1. Cable is difficult to snap into place.                                      |
| 2. Why is the Cable is difficult to snap into place?   | ➔ | 2. Design requires a tight fit and the operators don't always seat it properly |
| 3. Why don't the operators always seat it properly?    | ➔ | 3. They don't have a good way of insuring it is seated.                        |
| 4. Why don't have a good way of insuring it is seated. | ➔ | 4. There is no inspection of the seated component.                             |

## Corrective Action

- Institute an inspection of the stated component and “paint” to insure compliance.



## Lack of Inspection as Root Cause

- Escape Cause, not the Root Cause
- Seldom effective, unless automated
- Increases production/inspection time
- Expensive to implement
- Creates internal re-work loops

# The 4 Whys

- |  |   |  |
|--|---|--|
| 1. Why was the cable not assembled correctly?          | ➔ | 1. Cable is difficult to snap into place.                                      |
| 2. Why is the Cable is difficult to snap into place?   | ➔ | 2. Design requires a tight fit and the operators don't always seat it properly |
| 3. Why don't the operators always seat it properly?    | ➔ | 3. They don't have a good way of insuring it is seated.                        |
| 4. Why don't have a good way of insuring it is seated. | ➔ | 4. There is no tool to Poke Yoke the seating.                                  |

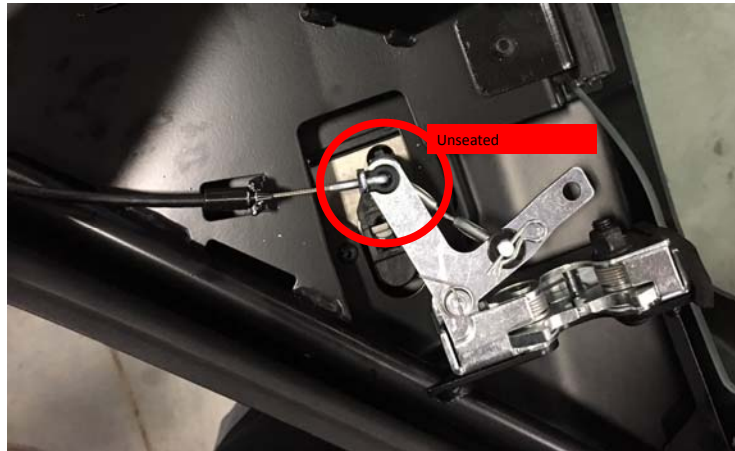
## Corrective Action

- Add a zip tie to the assembly to lock the component into the properly seated position





## New Problem



## Not Verifying the Root Cause

- Can you recreate the problem once you determine your root cause?
  - You should be able to turn “on” and “off “ the problem.
- Are you inducing unanticipated issues elsewhere?

## Not Involving the Right People

- The Quality personnel should not do the analysis at the desk.
- Brainstorming and analysis should be done with a cross-functional team.
  - Operators
  - Design Engineers
  - Customer
  - Supplier
- Do not assume your raw material supplier is the technical expert.

## What was the right question to ask?

- Why don't any of our other products have this problem?
  - A: Other similar products have a direct acting design without the cables and hooks.
  - RC: Complexity of design exceeded manufacturing capability. (Poor Design of Manufacturability)
  - CA: Redesign to direct acting latch.
  - PA: Update DFM Checklist for future products.

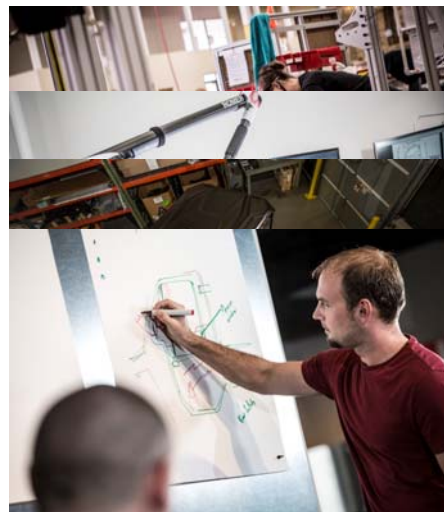
## An Alternate to the 5 Why Model

- Ask 21 questions.
- Ask one more question.



## 4 Common Mistakes to avoid when Determining Root Cause

- Blaming the Operator
- Lack of Inspection as Root Cause
- Not Verifying the Root Cause
- Not Involving the Right People





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**Manufacturers Alliance**  
Thank you for joining us!

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