Practical Problem Solving

Title:	Problem with luggage rack extrusion	Project Sponsor:	Key Stakeholder	Signature :	
Project Lead :	Someone that is trained in A3 PPS	Start Date :	27/02	Next Review :	29/02
Project Team :	Between 5-7 people, one with "fresh eyes"	End Date :	30/02	Last Updated :	28/02

Define

1. Problem Statement

Quality defects in finishing cell resulting in line stop for our biggest customer (70% of our order book) and costing the customer £10,000 / day in down time. There has been a rise in defects from week 32 to present - this is linked to the rise in deliveries over this time period. The highest quality related problem is paint defects (55.48%).

2. Project Objective

Ensure 100% right first time to customer within 24 hours and establish root causes to quality problems within 3 days.

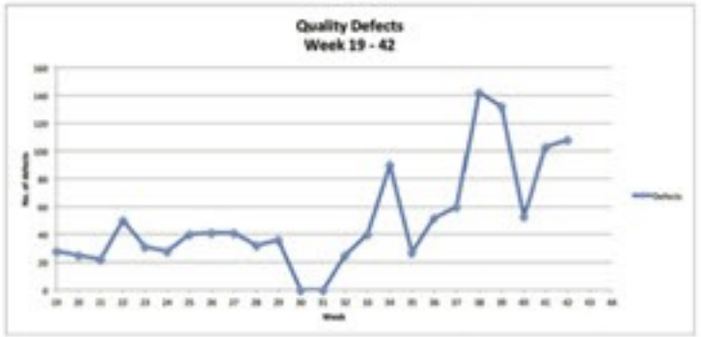
3. Quantify the Current Condition

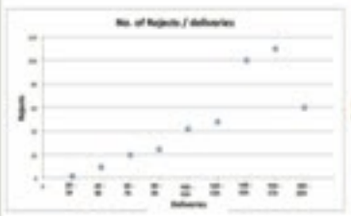
Finishing Cell

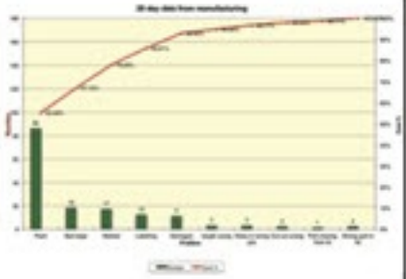
Dipping Tank → Light Linish → Powder Paint → Label → Inspect → Place in kit box

Guesses / opinions from walking the process	Observations
Oil is causing paint defects	Oil is dripping from conveyor belt

Measure







4. Point of Cause

Dipping tank → Light linish → Powder paint → Label → Inspect → Place in kit box

5. Initial Containment Activity

Contain

1. 100% Inspection

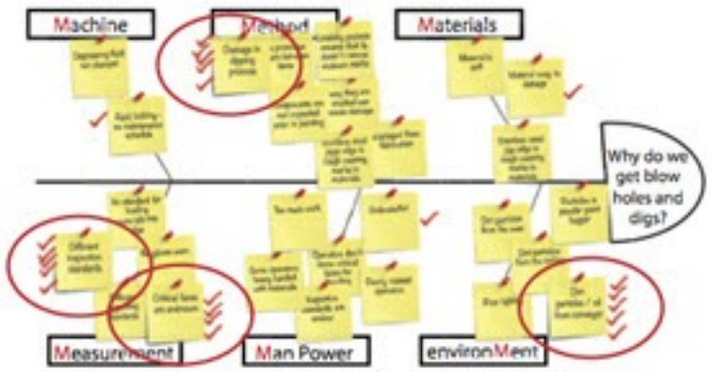
2. Inspector loads finished extrusion into kit box correctly orientated to avoid damage to critical surfaces

3. Brief all staff in the process to be extra careful with handling of extrusion, ensuring they are aware of the critical surfaces

4. Put in overtime to return stock levels for the customer to the agreed level

6. Cause Identification

Analyse



7. Cause Investigation

Item	Investigation	Who	When	Outcome	Status
1	Observe a batch going through the dipping tank process from lifting off trolly to placing onto light linishing bench.	SM	Week 43	Digs / dents on critical faces from toast rack. Bottom of rack is serrated.	
	Check the extrusion of one complete batch on the trolley before they go into the tank.	SM	Week 43	No marks or damage found.	
2	Carry out inspector to inspector test, by numbering 30 units and collecting pass/fail against the units for each inspector.	SK	Week 43	Pass / fail against 30 units revealed inconsistencies whereby the only agreed on 10 units	
	Check the standard that good quality is being measured against.	SK	Week 43	No clear standard exists - it's subjective and doesn't distinguish between critical faces and faces that are not seen.	
3	Hang a unit onto the conveyor and cycle around 5 times and check condition afterwards for dirt particles and oil with magnifying glass.	AB	Week 43	Clean surfaces. No dirt or oil seen under magnifying glass.	
4	Question 10 operators asking them to identify the critical faces.	GM	Week 43	All 10 operators unclear on what faces are critical.	

8. Direct Causes

DC1 Poorly designed jig

DC2 Inspection standards are unclear

9. Root Cause Investigation

Why: Inspection standards are unclear
Because: Specs have never been determined
Why: Because we don't know what good looks like
Because: There aren't any standard docs to refer to
Why:
Because:
Why:
Because:
Why:
Because:

Root Cause: No documentation exists that clearly defines the finished inspection standard

Why: The jig is poorly designed
Because: Dipping tanks vibrate and the jig marks the critical surfaces
Why: Loaded with the critical surface on the serrated edge
Because: Nobody knows what surfaces are critical
Why:
Because:
Why:
Because:
Why:
Because:

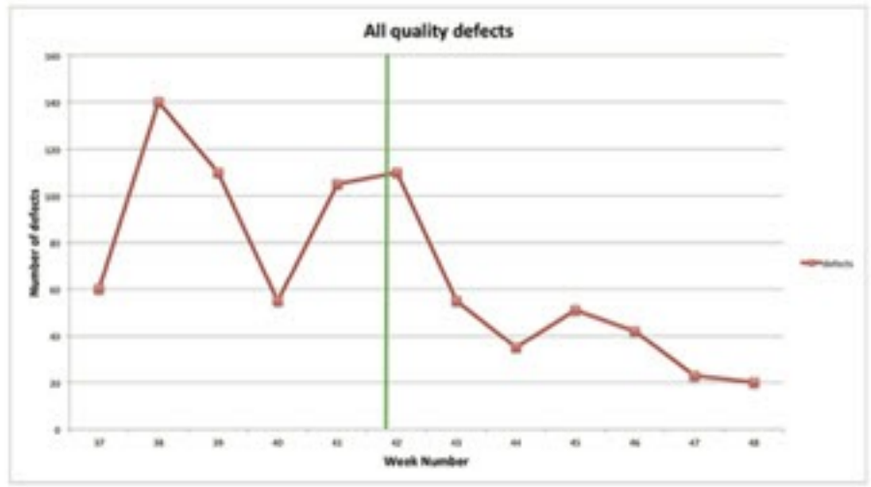
Root Cause: No docs or training has taken place to provide clarity on critical faces to customer

Improve

10. Root Cause Countermeasure Plan

Item	Resp	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Create standard that clearly define critical faces using ABC approach	SK								
Train all personnel to standard and get sign off from individuals	GM								
Make rubber insert for toast rack	AB								
Check effectiveness of insert	FI								

11. Impact Analysis (Result)



Control

12. Standardisation & Control Plan

Type	Activity	Action	Who	When	Status
RC 1	To ensure people are following the inspection standards	Daily Go - Look - See	AK	Daily	
RC 2	To ensure units are not being loaded with critical face up	Daily Go - Look - See	PB	Daily	
RC 2	Check effectiveness of rubber protector on "toast rack"	Ensure operator is checking condition of rubber	GM	Weekly	
RC 1	Ensure critical faces can be referenced to a standard	Implement a sample board showing the different types of extrusion with critical faces colour coded	FI	Week 51	

13. Learning Points

DK - My initial perception of the problem was proven incorrect - I was convinced the problem with the paint was to do with the conveyor
SK - I now know that we need to tackle problems in a stuctural way, starting by gathering facts and data.

14. Share Points

Communicate and show the documentation used to highlight critical faces using the ABC method and provide clarity of visual inspection standards.