

THERE'S SO MUCH MORE BEHIND A  DOOR

B&D Doors & Openers Presentation

Establishing an effective Equipment Defect Management System

2 August 2011



Company Background – B&D Doors & Openers



Video

Company Background – B&D Doors & Openers



- 15 sites in Australia, New Zealand and China
- 650 Employees in total, 100 Employees at Revesby
- “Make to Order”
- 5 Day ex-factory lead-time
- Processes Employed:
 - Roll-forming
 - Brake pressing
 - Assembly
 - Braiding
 - Fabrication
 - Electronics & Assembly

Company Background – Products



Series 1



Series 1 Rolling Doors:

S1 Roll-A-Door®
 S1 Firmadoor®
 S1 Roll-Up
 Roll-A-Shutter
 Flex-A-Door®
 (Domestic garage doors)

Series 2/3



Series 2 Rolling Doors:

S2 Wide line®
 S3 Wide line ®
 S2 Firmadoor®
 S2 Maxi
 S3 Maxi
 (Commercial & Domestic garage doors)

Bradbury



Sectional Doors:

Panelift®
 Firmapanel™
 Panelmasta®
 Cedarpanel™
 Timberpanel™
 Craftpanel™
 Design-A-Door™
 (Domestic garage doors)

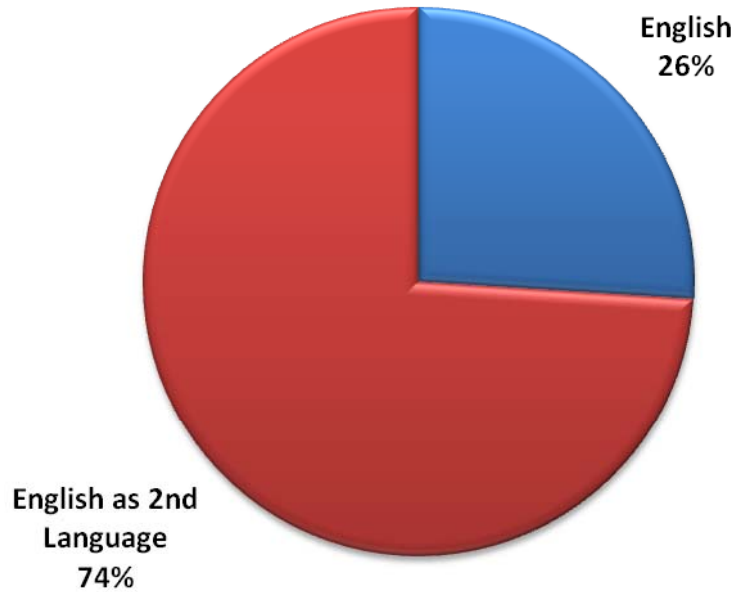
Company Background – Products



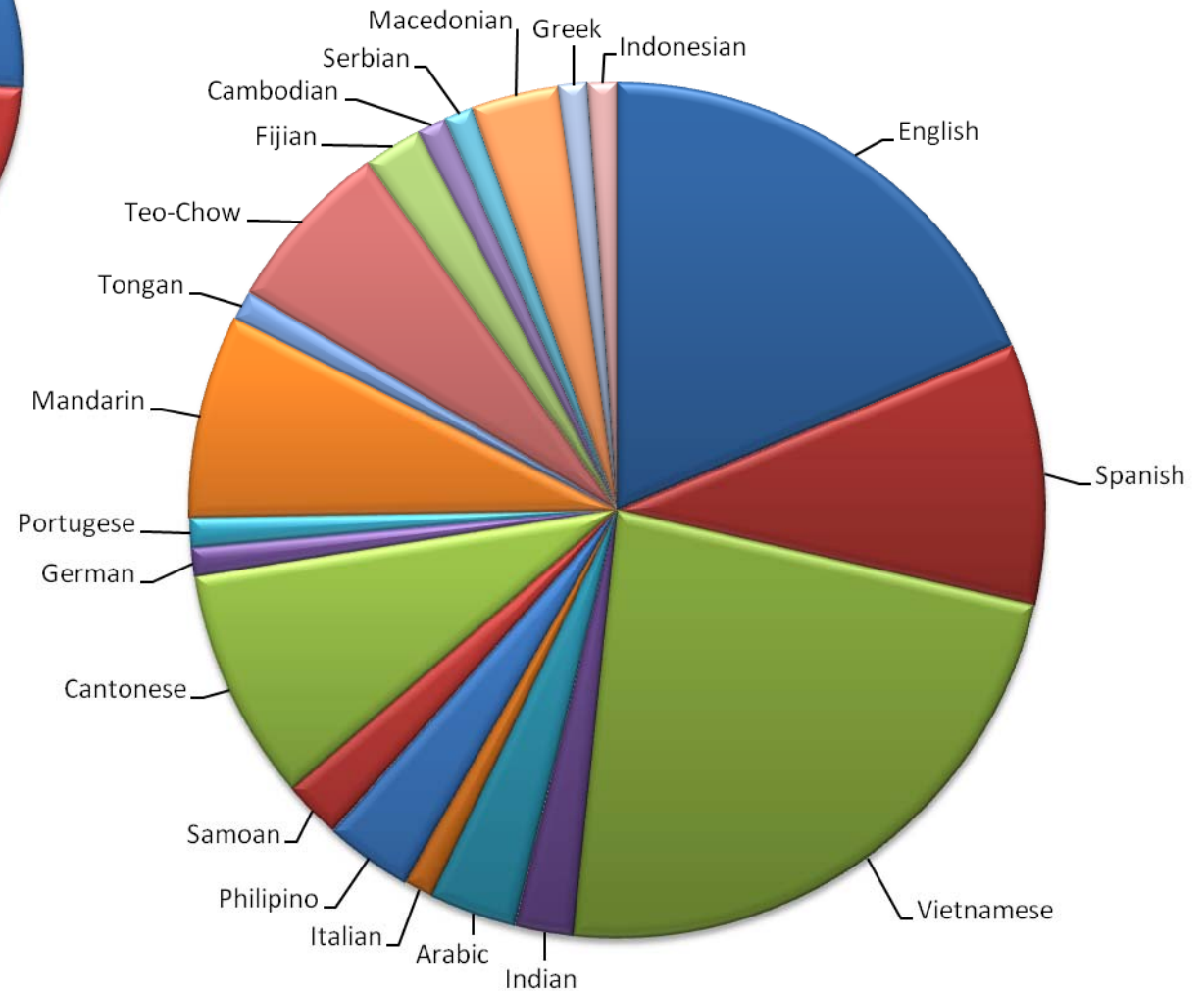
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Company Background – Demographics



20 Nationalities



Defect Equipment Management – Why Do It?



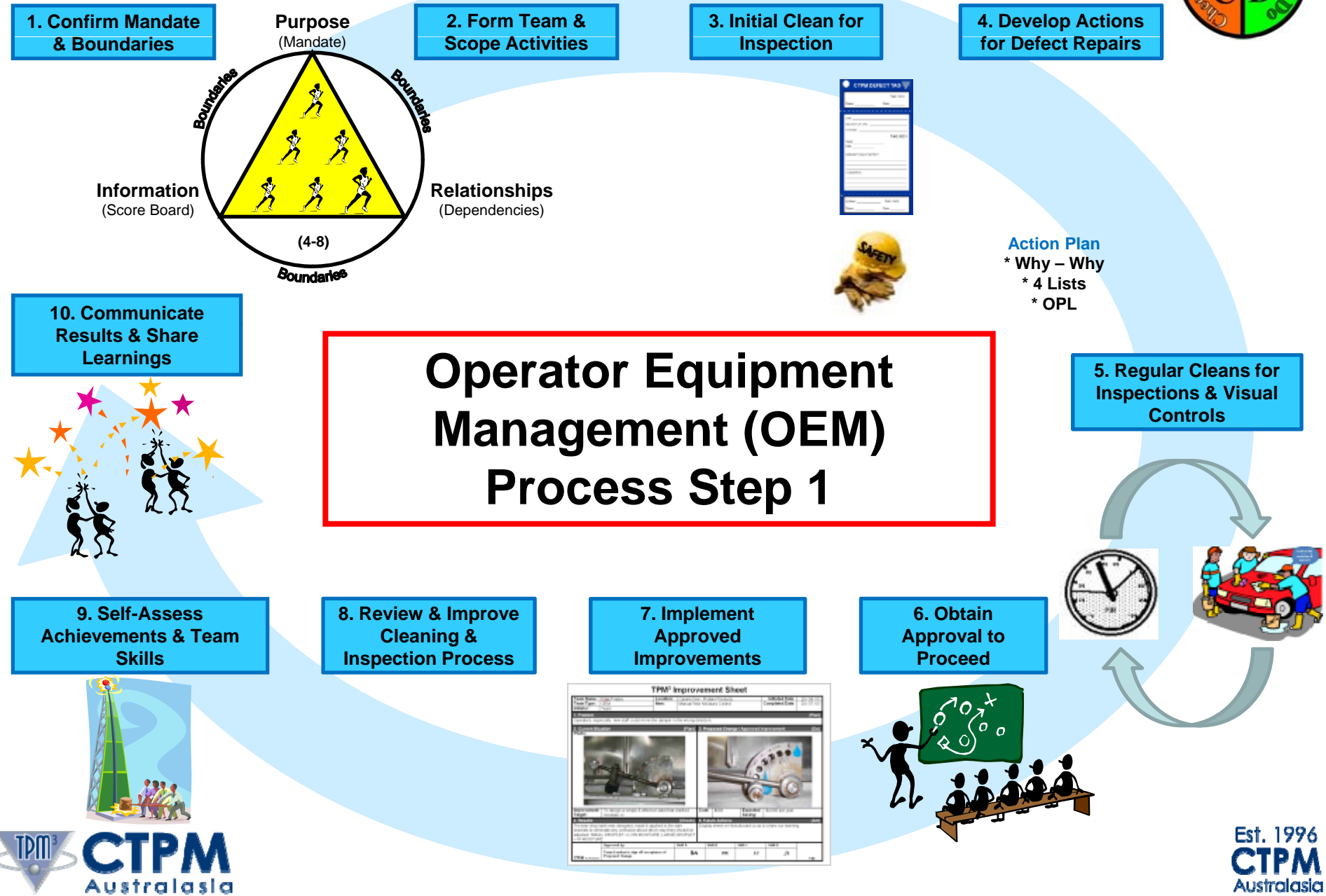
The purpose of defect equipment management is to ensure equipment problems are addressed at the earliest possible time when the rectification will often be quick and cheap, as compared to equipment failures which cause production disruptions and additional costs to repair.

Defect Equipment Management – Implementation



The following are critical for successful implementation;

- Education and Understanding;
- Clear & Concise Communication;
- Clearly Define the Work Areas;
- Have Buy In From Operations & Maintenance;



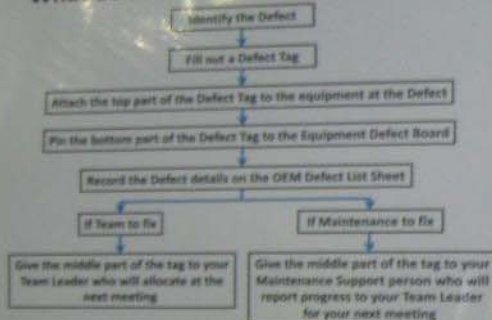


Conduct 'Initial Clean for Inspection'

- Conduct a briefing session with all involved
- Review Safety and Defect Tagging Procedures
- Remove all unnecessary materials
- Systematically clean and inspect equipment
- Identify all defects and repair where possible
- Identify the sources of contamination (where possible)
- Conduct a debrief and agree plan to move forward

OEM 1 - TRAINING BOARD

What do I do when I identify a Defect?



EXAMPLE

OEM Defect List

Rev: 10/10/09
Equipment: Subject Door
Date: 10/10/09

No.	Date	Description	Comments	A	B	C	D	E	Done
1	10/10/09	Motor assembly is loose and is causing noise	Motor is to be secured so it is properly aligned						
2	10/10/09	Roller assembly (all components) are loose	Roller gear assembly is to be replaced						
3	10/10/09	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced						
4	10/10/09	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced						

EXAMPLE

OEM Sources of Contamination List

Rev: 10/10/09
Equipment: Subject Door
Date: 10/10/09

No.	Sign of Contamination	Description of Contamination	Comments	Done
1	Oil on floor	Oil on floor	Oil on floor	
2	Oil on floor	Oil on floor	Oil on floor	
3	Oil on floor	Oil on floor	Oil on floor	
4	Oil on floor	Oil on floor	Oil on floor	
5	Oil on floor	Oil on floor	Oil on floor	
6	Oil on floor	Oil on floor	Oil on floor	
7	Oil on floor	Oil on floor	Oil on floor	
8	Oil on floor	Oil on floor	Oil on floor	
9	Oil on floor	Oil on floor	Oil on floor	
10	Oil on floor	Oil on floor	Oil on floor	

Filling Out CTPM Defect Tag

Person who found the defect: _____

CTPM Defect Tag

Tag Number: _____

Date of when the defect was found: _____

System: Equipment system involved is e.g. pneumatic, hydraulic, manual, electronic, control to the machine that will be used as (e.g. 4).

Describe what the defect is: _____

Any other information that might help with the defect: _____

CTPM

EXAMPLE

OEM Key Questions List

Rev: 10/10/09
Equipment: Subject Door
Date: 10/10/09

No.	Question	Answer	CPM 1
1	What is the defect?	Roller gear assembly is to be replaced	
2	What is the defect?	Roller gear assembly is to be replaced	
3	What is the defect?	Roller gear assembly is to be replaced	
4	What is the defect?	Roller gear assembly is to be replaced	
5	What is the defect?	Roller gear assembly is to be replaced	
6	What is the defect?	Roller gear assembly is to be replaced	
7	What is the defect?	Roller gear assembly is to be replaced	
8	What is the defect?	Roller gear assembly is to be replaced	
9	What is the defect?	Roller gear assembly is to be replaced	
10	What is the defect?	Roller gear assembly is to be replaced	

EXAMPLE

OEM Difficult to Access Area List

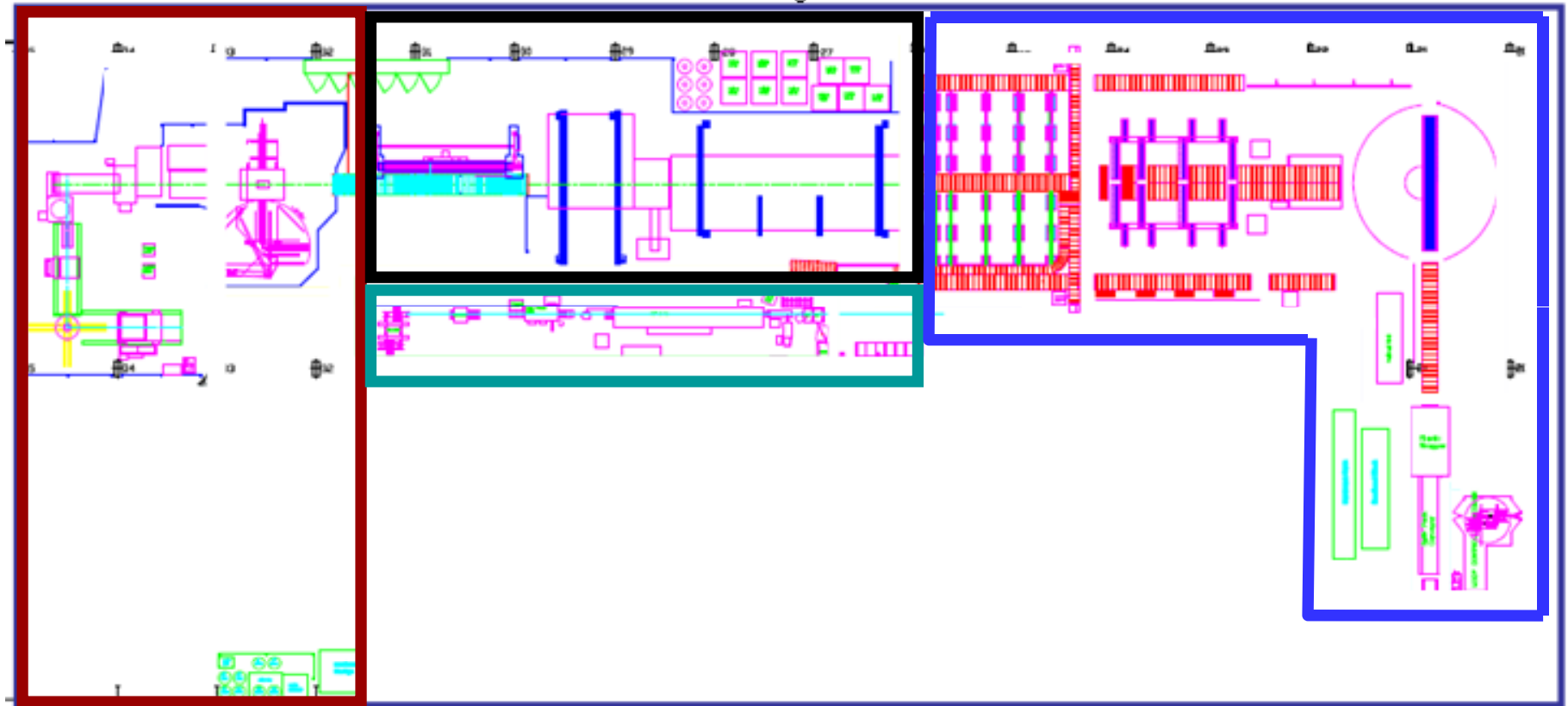
Rev: 10/10/09
Equipment: Subject Door
Date: 10/10/09

No.	Description	Comments	Done
1	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
2	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
3	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
4	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
5	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
6	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
7	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
8	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
9	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	
10	Roller gear assembly is to be replaced	Roller gear assembly is to be replaced	

Education is Critical



Work Area - Team Break Up



 Day Shift team A
 Day Shift team B

 Afternoon Shift team C
 Afternoon Shift team D



Defect Tag

Filling Out CTPM Defect Tag

Person who found the defect

DPA: Defined Production Area

The DPA Map will have the equipment broken up into sections

Any extra information that might help with the fixing the defect

CTPM DEFECT TAG

TAG: 0001

Name: _____
Date: _____

DPA: _____
SECTION OF DPA: _____
SYSTEM: _____

TAG: 0001

Name: _____
Date: _____

DESCRIPTION OF DEFECT:

COMMENTS:

SYSTEM: _____
TAG: 0001

Name: _____
Date: _____

Tag Number

Date of when the defect was found

System: Equipment system involved e.g. pneumatics, hydraulics, frame, transmission (similar to the modules that will be used in OEM-4)

Describe what the defect is

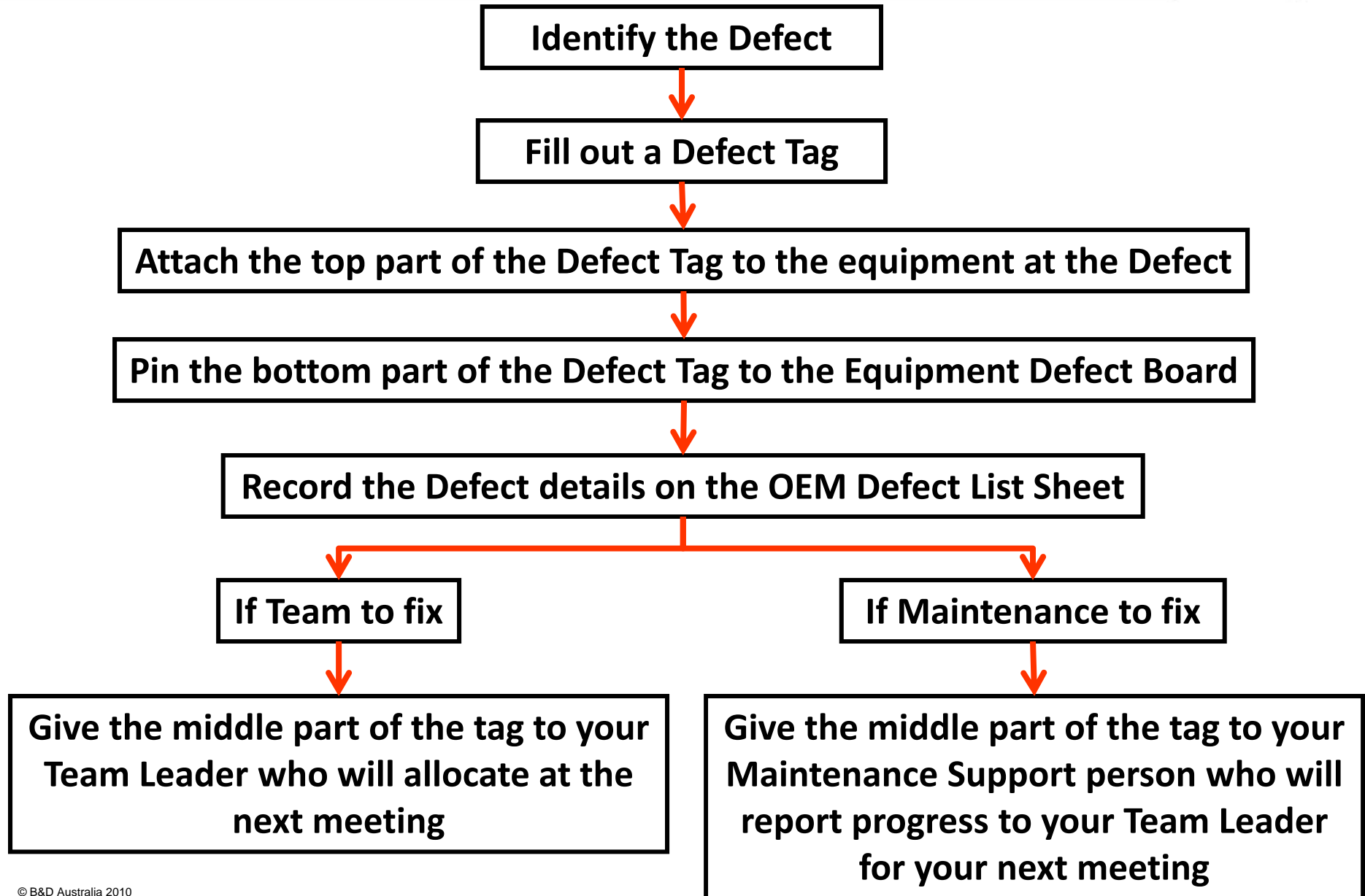
CTPM
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What do I do when I identify a Defect ?



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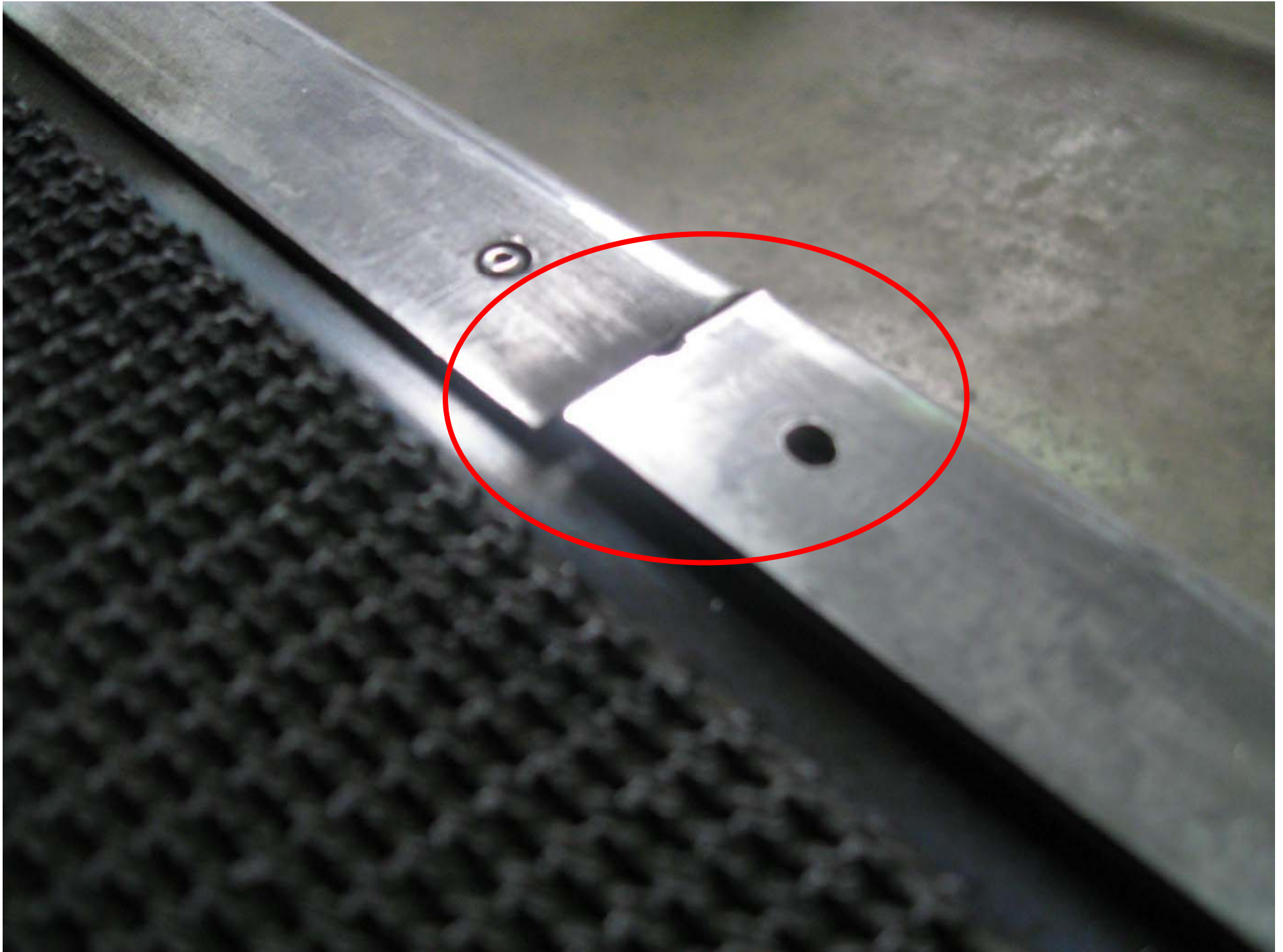
Looking for Defects whilst cleaning



Everybody gets involved







OEM Defect List



OEM Defect List

Date: 13/08/10

Equipment:De-coilers / Pilot Press.....

Team:Panel Shifters.....

P1 - Low MT – Maintenance Fix

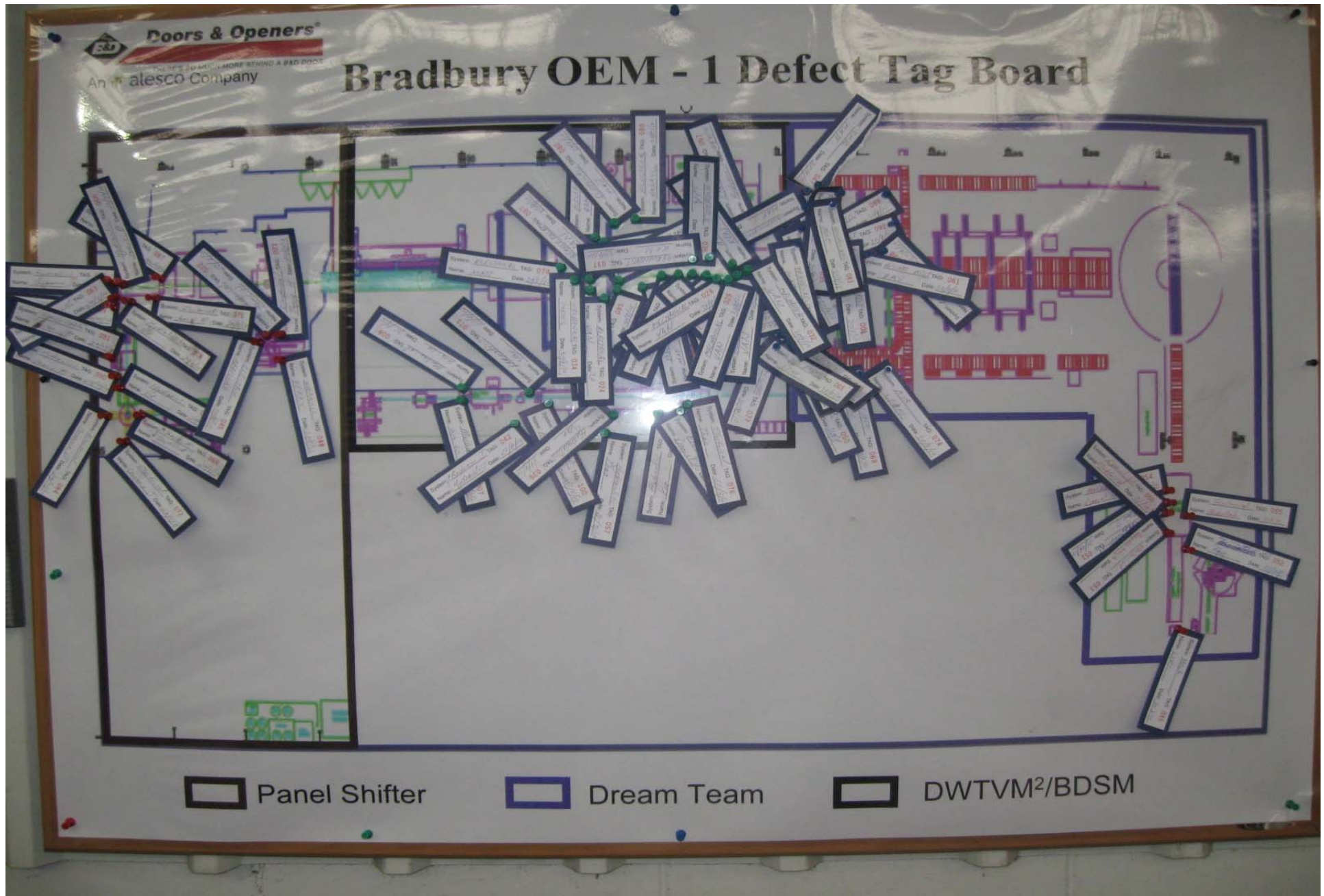
P2 - Medium ET – Electrical Fix

P3 – High OP – Operator Fix

Legend

A – Repaired by Operators
B – Repaired by Mechanical Maint
C – Repaired by Electrical Maint
D – Referred to Mechanical Maint
E – Referred to Electrical Maint

No.	Defect Tag No.	Description	Comments	A	B	C	D	E	Date actioned
1	96	Leak in hydraulic hose – Online De-coiler	MT Fix / P3				X		
2	99	Cut in hydraulic hose – OffLine De-Coiler	MT Fix/ P2				X		
3	93	Cut in hydraulic hose – OffLine De-Coiler	MT Fix/ P2				X		
4	90	Hydraulic hoses are wearing - OffLine De-Coiler	MT Fix/ P1				X		
5	87	Leak in Hydraulics	MT Fix / P3				X		
6	84	Electrical lead loose	OP - ET / P1 (operator to look at)					X	
7	81	Cable loose from tooling	MT Fix / P3				X		
8	78	Cut in hydraulic hose	MT Fix/ P2				X		
9	75	Electrical cable too long	ET Fix/ P1					X	
10	72	Electrical lead loose	ET Fix/ P1					X	
11	45	Exposed wires	ET Fix/ P3					X	
12	48	Loose bolt on hydraulic manifold	MT Fix/ P3				X		
13	63	Electrical cable too long	ET Fix/ P1					X	
14	21	Electrical cable loose	OP - ET / P1 (operator to look at)					X	



Tag board showing location of Defects

Defect List - Whiteboard



OEM-1 BRADBURY DEFECT LIST				
TAG #	DESCRIPTION			
96	LEAK IN HYDRAULIC HOSE			
99	CUT IN HYDRAULIC HOSE			
93	" " " "			
90	HYDRAULIC HOSE WEARING			
87	LEAK IN HYDRAULICS			
84	ELECTRICAL LEAD LOOSE			
81	" " " "			
75	" " " "			
21	" " " "			
78	CUT IN HYDRAULIC HOSE			
45	EXPOSED WIRES			
48	LOOSE BOLT ON HYDRAULIC MANIFOLD			
22	ELECTRICAL BOX LOOSE			
44	TORN / WORK BELT			
60	" " " "			
1	" " " "			
98	" " " "			
61	" " " "			
95	" " " "			
86	" " " "			
92	" " " "			
89	" " " "			
80	" " " "			
68	LOOSE CABLE TRACK			
74	AIR LINE LOOSE ON FLOOR			
71	BROKEN BOLT			
62	" " " "			
65	LOOSE SPACER BAR			
TAG #	DESCRIPTION			
88	BROKEN CONDUITE			
97	WORN KEYWAY + STOP ON GEARS			
94	RUBBER ROLLER DAMAGE			
85	STROBE LIGHTS NOT WORKING			
67	" " " "			
82	" " " "			
64	UNUSED SENSOR ON ROLLERS			
79	TRIP HAZARD PENDANT LEAD			
23	EXPOSED CABLE WIRES			
24	PULL CORD FOR ESTOP FREEXED			
33	LOOSE PAF ROLLER #13			
32	" " " " #12			
31	" " " " #10			
30	" " " " #9			
29	" " " " #8			
28	" " " " #7			
27	" " " " #5			
26	" " " " #4			

NOTES FOR MAINTENANCE

NOTES FROM MAINTENANCE

PANEL
SHIFTERS
D/S

THE DREAM
TEAM
D/S

DUTYMAN/BOSSMAN
A/S



Defect Tagging Operator Fix

If Team to fix (Category A Defect, repaired by operators) Put tag in Team to Fix section of tag box



Team leader will allocate these task during clean for inspection or in discretionary time



Once fixed remove section 1 of tag from equipment



Remove section 3 of tag from board leaving pin for future reference



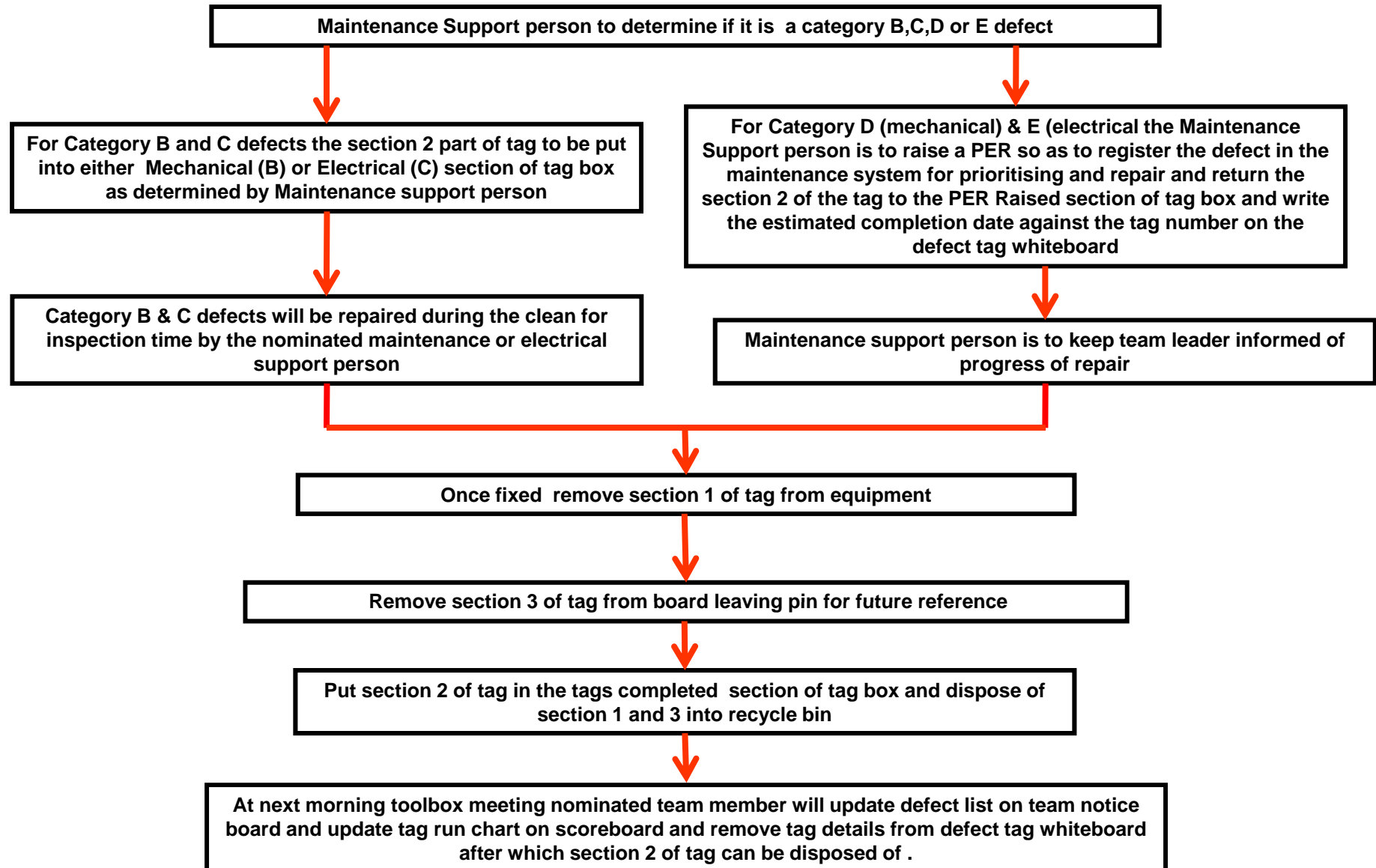
Put section 2 of tag in the tags completed section of tag box and dispose of section 1 and 3 into recycle bin



At next morning toolbox meeting nominated team member will update defect list on team notice board and update tag run chart on scoreboard and remove tag details from defect tag whiteboard after which section 2 of tag can be disposed of .



Defect Tagging Maintenance Fix





Defect Tag Box



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Equipment Defect - Maintenance Support Map



Series 2 Activity time Mondays
D/S 2:20pm-3:50pm
A/S 4pm-5:30pm



Support Resource Requirements

Fitters to attend 1.5 hr Clean for Inspection with their teams each week to:

Fix defects

Do PM's / PdM's

Electrician to attend each line 1 hr each week during the Clean for Inspection time to:

Fix electrical Defects

Do PM's / PdM's

Maintenance Support and their teams

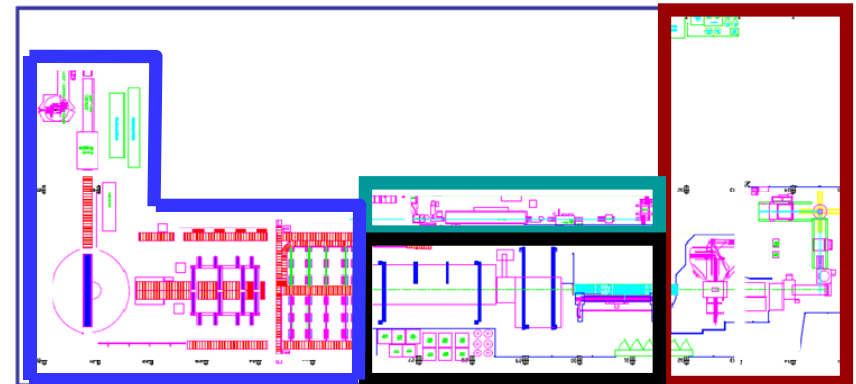
Glenn - Fitter D/S – Series 2 x 2 D/S Teams

Peter - Fitter D/S - Bradbury x 2 D/S Teams

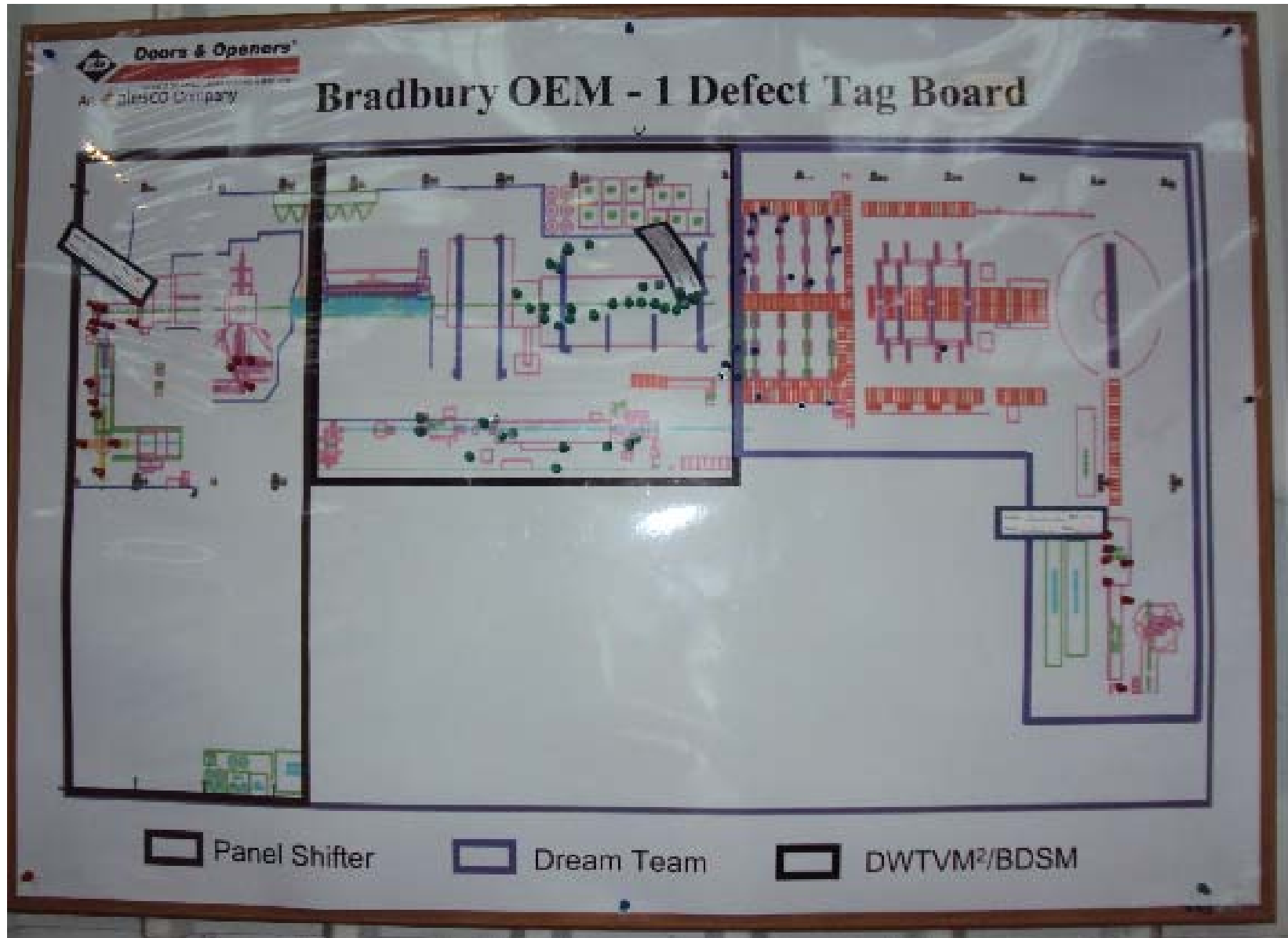
Bill - Fitter A/S - Bradbury A/S Team,
Series 2:A/S Team

Simon – Electrician D/S – All lines
A/S at Support fitters request

Bradbury Activity time Tuesdays
D/S 1pm-2:30pm
A/S 4pm-5:30pm



Defect Tag Board



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Lessons Learnt



- Its not easy
- Importance of creating regular timetable
- Allocation of time and sticking to it
- Time commitment & involvement by Site Leadership Team
- Support for poor literacy
- The management team needs to be the model team
- You have to change training strategies to suit your workforces language, literacy and numeracy level
- The importance of Celebrating Success



Celebrating Success



Building on the foundations laid down during Work Area Management where the teams looked at setting up the work area, the Revesby site was keen to continue their Lean Manufacturing journey into Operator Equipment Management (OEM) where operators would learn how to identify and rectify their equipment defects through a clean and inspect process.



HIGH ROLLERS TEAM

The Initial Clean for Inspection was the start of strengthening the information flow between operations and maintenance. The key to this successful Clean for Inspection activity was to prepare thoroughly, ensuring the team had all the required equipment prior to the day. Working in conjunction with maintenance, the teams ensured that the equipment and chemicals chosen were safe and suitable.

Throwing on a pair of overalls and getting in and dirty with the various teams, senior leadership members were able to show their support and commitment to the process.

They included the:

- National Operations Manager;
- NSW Operations Manager;
- NSW Production Supervisor;
- NSW Maintenance Supervisor;
- NSW OHS Coordinator; and
- Site Engineering Personnel.

Whilst cleaning the equipment the team identified and tagged Defects, Contamination, Difficult to Access Areas and also noted down any Key Questions they would like answered to help them better understand their equipment.

PANEL SHIFTERS TEAM

The teams found around 120 defects in total, across 2 production lines. These defects became opportunities to rectify faults and make improvements before any adverse impacts on production or equipment could occur.

The teams also identified sources of contamination that needed to be analysed and went about developing solutions to remove or at least better contain the contamination so as to stop it entering key areas of the equipment and make routine Cleaning for Inspection activities quicker and easier.

Overall the Clean for Inspection event was a great success for the Revesby site. We would like to congratulate all the teams involved in this Initial Clean for Inspection and look forward to further success as the improvements are implemented.

Bradbury OEM - Defect Tag Board



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Communicate Success



Questions?