

## Reuniting Improvement with Coopers Keg Line



The last time a Macro Focused Equipment & Process Improvement (FE&PI) Team had been conducted on the Keg Line at **Coopers Brewery**, was

way back in 2007. Following CTPM's improvement cycle model, this Cross-functional Improvement Team approach see teams enter a 12 – 14 week program with 1½ hour meetings and 1 hour activity time each week to help improve the current state of their workplace, equipment and processes.




The Coopers Site Leadership Team has been committed to conducting a Macro Focused Equipment & Process Improvement (FE&PI) Team in the first cycle of each year to update the Overall Equipment Effectiveness (OEE) Loss Analysis so as to continually improve the Packaging Lines performance.

This year it was time to reunite the Keg Line by means of a Macro FE&PI Team, with the mandate to:

- Identify all equipment losses including unplanned interventions on the Keg Line;
- Improve the Keg Line OEE by 25% while also improving or maintaining the agreed Goal Aligned Performance Measures; and
- Recommend further loss related improvement initiatives for the Keg Line to the Leadership Team.

As always the team commenced by **analysing the current situation**, which included an Operator Survey that gave Lager Cellar Operators the opportunity to list all the problems and issues with the Keg Line. This produced a list of 25 improvement opportunities of which 15 were completed before the teams Final Presentation, 5 becoming a work in progress and the remaining 5 requiring capital expenditure approval to progress. Refer to Figure 1 for an example.

**Figure 1: External Keg Washer Improvement Sheet**

Team Name:	Macro FE&PI – Keg Team	Location:	Keg Line	Initiated Date:	20140224
Team Type:	Team	Item:	External Keg Washer Drain pipes & Sieve	Completed Date:	20140314
1. Problem (Plan)					
Access to the drain sieve for the External Keg Washer needed to be improved to allow easier and quicker cleaning of the drain.					
2. Current Situation (Plan)		3. Improvement (Approved)			
					
Improvement Target:		Cost:			
Improve access to the sieve and save time & effort		Expected Savings:			
4. Results: (Check)		5. Future Actions: (Act)			
The 3 individual pipes were replaced by one big pipe with a BSM fitting directly going to the drain. Therefore making it quick & easy to remove the pipe and gain access to the sieve so it can be cleaned.		Apply the improvement to other drains on site if required.			
Approved by:		Technical Brewer		Process Maintenance Team Leader	
Sign off acceptance of Approved Change		David Medlyn		Steve Schmitz	
CTPM Authorised					

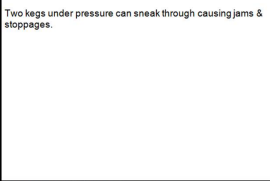


The team also identified two key OEE losses:

- Keg Robot In-feed and Out-feed Light Curtain trips (creating stoppages of the Line); and
- Keg Rejects.

As the Keg Line is unmanned and monitored by the Lager Cellar Operators (who are in and out of the control room) via camera's and visual alarms. On some occasions the Keg Robot can be down for extended periods of time if a stoppage is unnoticed.

The first key OEE loss identified on the Keg Line was caused by the regular stopping of the Robot due to a Light Curtain tripping out on the in-feed and out-feed conveyor sections. Some causes for the Light Curtain to trip out have been identified and fixed (as per the improvement in Figure 2 below), and occasionally a damaged or broken pallet can trip out the Light Curtain also.

**Figure 2: Keg Robot Palletiser Improvement Sheet**

Team Name:	Macro FE&PI Keg Team	Location:	Keg Line	Initiated Date:	20140221
Team Type:	Team	Item:	Keg Stopper	Completed Date:	20140225
1. Problem (Plan)					
Due to the Guide rail being too short, when there were a number of kegs on the conveyor waiting to be weighed, the weight would force two kegs through the stop instead of one at a time.					
2. Current Situation (Plan)		3. Improvement (Do)			
					
Improvement Target:		Cost:			
Eliminate jams & stoppages		Expected Savings:			
4. Results: (Check)		5. Future Actions: (Act)			
The extended part will prevent two kegs trying to go through at the same time.		New wearstrip to be affixed once it comes in (on order).			
Approved by:		Technical Brewer		Process Maintenance Team Leader	
Sign off acceptance of Approved Change		David Medlyn		Steve Schmitz	
CTPM Authorised					

Adding to the problem was the difficulty to see the visual alarm when the Light Curtain had tripped. To reduce the downtime the team proposed that the Forklift Operators could help by resetting and restarting the Keg Robot, as they drove past quite regularly. This was approved, so the visual alarm was improved for the Forklift Operators to see more easily when the system was down and a One Point Lesson was developed to train the Forklift Operators how to reset and start the Robot Keg cell.

As for the second major OEE loss on the Keg Line, the Cellar Operators collected Keg Reject data for 3 weeks in February identifying the following reject rates:

- Lane 1 = 4.0%; and
- Lane 2 = 1.5%,

With the main reject problems being identified as:

- Head not tight;
- No media pressure; and
- Over pressure Kegs.

The team progressively worked on these problems throughout the cycle and in April another 3 weeks of Keg Reject data was collected which showed that the reject rate had dropped to:

- Lane 1 = 0.9%; and
- Lane 2 = 0.8%,

With still the same reject problems occurring. Although the significant drop in Keg Rejects on both lanes, it was thought that more work is needed to reduce rejects even further.

CTPM would like to congratulate the Keg Line Cross-functional Improvement Team for the great success achieved during the cycle. We look forward to further Improvement Teams building on the foundations established.

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