CUMMINS MID-RANGE ENGINE PLANT CASE STUDY (COLUMBUS, IN)

Problems to address:

a) Internal Quality not good enough
b) Takes too long to train with mixed final results
c) Safety Incident rate too high
d) Worker participation in improvements is low

Results: **(Before and After TWI Implementation)**

Prior Levels of Results	Current Levels of Results (2016)
a) 2011 PPM Operator error level ~ 1500	a) Current PPM Operator error level ~ 70 *TWI Job Instruction (JI)*
b) An average job task took about 3 – 4 hours to train with losses in quality and production rate.	b) The same tasks now take less than 1 ½ hours to train; new trainees meet takt time without errors. *TWI Job Instruction (JI)*
c) OSHA Recordable rate = 1.75	c) OSHA Recordable rate = 0.66 *TWI Job Safety (JS) & Job Relations (JR)*
d) Little training or participation from the shop floor	d) 3000 improvement ideas from the shop floor in the 3 years since 2013 *TWI Job Methods (JM) & Job Relations (JR)*

Situation Background:

a) Operator manufacturing error level – *Job Instruction (JI)*

Walt Miller, Director of Operation Excellence at Cummins Mid-Range Engine Plant, said that in 2011 everyone had opinions on Lean but nobody really knew how to do it. Walt and Cummins' goal was to change the culture and "create competitive advantage with their workforce", and the place they would start was establishing standard work.

TWI is often referred to as 'the missing link to Lean' and TWI's Job Instruction component is key to developing real standard work. In about 2013 Cummins began to bring TWI Job Instruction (JI) into the plant. Walt said about the reduction in manufacturing defects from 1500 to 70 PPM "I attribute a lot of that to JI."

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Situation Background:

b) Takes too long to train – *Job Instruction (JI)*

Dana Sims, Continuous Improvement Leader, explained that jobs stations that used to take 2 – 4 hours to train now sometimes take only about 15 minutes. This 15 minutes of training is then followed by close watching for about another hour in Job Instruction Step 4, and with great results.

Operator and Certified JI Instructor Frank Epler described how he had been at a different plant where "training was terrible" but at Cummins Mid-Range Engine Plant, using JI, jobs were "very easy to train and explain".

Situation Background:

c) Safety Incident rate too high – *Job Safety (JS) & Job Relations (JR)*

Cummins' Columbus Plant now has 3 C.I. Leaders Qualified by the TWI Institute to train the TWI Job Safety course and have 94 Operators Certified in Job Safety. Their new goal is now to be at 0.35 OSHA Recordable rate. Wow!

Situation Background:

d) Worker participation low – *Job Methods (JM) & Job Relations (JR)*

Cummins provides TWI Job Methods Improvement training to Operators before each Kaizen event and has 9 C.I. Leaders currently Qualified by the TWI Institute to train TWI Job Methods. Cummins now conducts 1 - 2 Kaizen events per week and as Walt Miller says, "Operators now have ownership".

Cummins also has 2 C.I. Leaders Qualified by the TWI Institute to train Operators in the TWI Job Relations. TWI Job Relations (JR) deals with building trust between supervisors and the people who do the work. Whenever an organization wants to change the way people do their work, the people are the most important part of any improvement because they are the doers. Skill in Leading provided in TWI Job Relations training builds receptivity and reduces resistance to necessary change and is therefore a very important part of any Lean implementation.