ACME **A3** **A3 TITLE:** WRITTEN IN 12 WORDS OR LESS AS A PROBLEM DESCRIPTION NOT AS POSSIBLE CAUSE **DATE WRITTEN:** 03/04/08
A3 AUTHOR/S: JOHN DOE & JANE DOE

BUSINESS CASE BACKGROUND

The Quick Brown Fox Jumped Over The Lazy Dog.

TARGET CONDITION

1. The Quick Brown Fox Jumped Over The Lazy Dog.
2.

CURRENT CONDITION

1. The Quick Brown Fox Jumped Over The Lazy Dog.
2.

Last Print date 4/30/2009

ACTIONS / METRICS / RESULTS /FOLLOW UP

№	COUNTERMEASURE	SPA	TRANSFER
1a			
2a			
2b			
2c			
3a			
4a			
5a			
6a			
7a			
8a			
9a			
10a			

	TIMELINES 2008 MONTHS								METRIC	OWNER		
	3/26/08	4/26/08	5/26/08	6/26/08	7/10/08	8/26/08	9/26/08	10/26/08			STARTED	COMPLETED
1a												
2a												
2b												
2c												
3a												
4a												
5a												
6a												
7a												
8a												
9a												
10a												

The following slides are examples of my A3 thinking writing abilities. Because this is posted on the internet and contains private information, I have removed the names of the companies that I was either working or consulting for and any fully identifiable employees names along with any company logos or trademarks. I am replacing names and company logos or trademarks with the fictitious name of ACME Manufacturing Inc. The design of the A3 format is mine and the contents are of my intellectual insight and creation…

My A3 blank form.

ACME **A3**

A3 TITLE: LINE TECHNICIAN TRAINING RATINGS ARE POOR
A3 AUTHOR: FRED WEBBERKING

DATE WRITTEN: 03/04/08

BUSINESS CASE

Technical training ratings of operator technicians is poor

We have a total of 20 inexperienced crew members with less than 2 year experience, 31 less than 2 year's experience

We are 10 operator technicians short

We are moving from a hands off group to a hands on group. New expectations

TARGET CONDITION

1. To become fully staffed including two extra technicians that we can have in training
2. Technicians will be expected to do Set ups, Maintenance, Preventive Maintenance activities in alignment with new organizational structure
3. Process technicians will need to be involved in and document all operator training within their workgroup and shift
4. Standardized work for all tasks within department completed
5. Complete class room training
6. Complete all train the trainer class for technicians
7. Have all trainers in place in Forming and OMV
8. Develop a program for technicians working within Setup and Tooling
9. Have an updated trainee evaluation manual for operator trainee
10. Develop Line Technician manual for OMV and distribute to OMV Line Technicians

CURRENT CONDITION

1. 10 technicians short
2. No clear path; no base line, we need to no what will be expected of the operators technicians
3. Process technicians not involved in training
4. No standardized work
5. No class room training
6. No formal trainers
7. No trained group of trainers
8. Operator technicians not working with Set up and Tooling again with a clear out line
9. Operator trainee evaluation manual for Greenville out of date
10. No training manual exits for OMV Line Technicians

Last Print date 4/30/2009

ACTIONS / METRICS

№	COUNTERMEASURE	SPA	TRANSFER
1a	Fully staffed in next 60 days	Susan R	
2a	Initial guidelines and needs for what technicians require training in forming teams	Susan R	
2b	Forming team managers to roll out new organization of teams with clearly defined responsibilities	Andy Mc	
2c	Prepare and give to communication memo of ongoing expectations to FTM, SMs others	Susan R	
3a	Clear definition communicated to process Techs that they will be involved in the training of Techs	Andy T	Andy P
4a	Forming team manager to provide John M and Fred W with prioritized standard work requirements	Andy M/Will	John & Fred
5a	Develop classroom training for technician training	John & Fred	Eng. Group
6a	Train the trainer	Andy T	
7a	Deploy trainers in forming and OMV at completion of 6a	Andy T	
8a	Bring new Techs 8 hours shift for first 6 weeks to work with trainers, set-up and tooling on different shifts	Andy T	
9a	Develop training skills matrix and post on storyboards in company recognition of employee skills levels	Fred W	
10a	Develop Training manual for OMV and distribute to OMV Line Technicians	John & Fred	Steve C

	TIMELINES 2008 MONTHS								METRIC	OWNER	STARTED	COMPLETED
	3/26/08	4/26/08	5/26/08	6/26/08	7/16/08	8/26/08	9/26/08	10/29/08				
1a										Susan R	3/26/2008	04/28/08
2a										Susan R	3/26/2008	05/01/08
2b										Andy Mc	3/26/2008	05/30/08
2c										Susan R	3/26/2008	03/26/08
3a										Andy P	3/26/2008	04/03/08
4a										Andy/Will/Jeff	3/26/2008	05/30/08
5a									hours of missed flow because of manpower training	John & Fred	3/26/2008	05/25/08
6a										Andy T	3/26/2008	05/30/08
7a									Prioritized list following operator training test	Andy T	3/26/2008	
8a										Andy T	3/26/2008	
9a										Fred W	3/26/2008	03/28/08
10a										Steve C	4/26/2008	6/9/2008

50% Complete. 2nd round of training had to be postponed until August 08 as outside resource not available. Training will be: 8/06/07/08 and 08/13/14/08.

Line Technician training improvement A3.

ACME **A3**

A3 TITLE: CONTAMINATION OF XYZ PRODUCTS ON LINE 7
A3 AUTHOR: FRED WEBBERKING

BUSINESS CASE

One of the customer quality requirements are the prevention of contamination (environmental, process excess or human contamination) to the products that we make for them. Pervious customer complaints for contamination have been:

Metal in finished product.

Human hair in finished product.

Burnt plastic in finished product.

Human hair in finished product has been the highest repeat complaint for contamination.

It is recommended that a review of our current standards of contamination control be revised.

TARGET CONDITION

1. Line Technicians and Inspectors are to comply with contamination prevention requirement concerning human hair
2. Line Technicians and Inspector packer are to apply hand sanitizer. Need to move a hand sanitizer closer to the point of use to lab coat storage are and point of use work station on trim press.
3. N/A
4. Establish a standard work instructions need to be developed on proper usage and disposal of surgical gloves
5. Update current standard work instruction to proper procedure in lint roll of personal cloths.
6. Update current standard adding standard work on the wearing, disposal and care of lab coats that the Line Technicians and Inspector Packers wear – plus any other associate who works on the trim press during active production running of the line.
7. Will involve Process Technicians and Maintenance Technicians in all the above training.
8. Will develop 5S Kaban for line using the ideal culture model

CURRENT CONDITION

1. Line Technicians and Inspector Packers are required to wear hair nets and beard nets anywhere in the work area - they do not always comply to this requirement in making sure that all hair is properly contained.
2. Line Technicians and Inspector Packers are required to apply hand sanitizer before working anywhere on the line - They do not always comply to this requirement.
3. Line Technicians and Inspector Packers are required to wear surgical gloves when working in the trim press area.
4. Line Technicians and Inspector Packers are required to remove surgical gloves and discard in trash can if they leave the trim press work area (e.g. going to break) and are required to wear a new pair of surgical gloves upon return to the trim press work area – They do not always comply to this requirement, leaving gloves in/on/around the work area.
5. Line Technicians and Inspector Packers are required to lint roll their personal cloths before putting on their lab coats – They do not always comply to this requirement.
6. Line Technicians and Inspector Packers are required if they leave the line (e.g. going to break or leaving to work on another part of the line) to remove their lab coats - it is unclear if they are to disposed of their lab coasts, necessitating them to have to wear a new lab coat on their return; hang their lab coats up, necessitating them having to lint roll their personal cloths and then lint roll their lab coats before wearing them again and returning to the line.
7. Any associate or contractor working in the trim press work area are required to comply with all of the above – They do not always comply with this requirement.
8. No environmental or process excess 5S Kanbans established to control contamination

Last Print date 4/30/2009

ACTIONS / METRICS

№	COUNTERMEASURE	SPA	TRANSFER
1a	Retrain all affected associates that work on line 7 in GMPs and customers specific qaulity requirements	Jeff W	Anita T
2a	Install hand sanitizer near lab coat hanger and on trimpress work station	Jeff W	TerryG
3a	N/A		
4a	Develop standard and train all affected associates in properly glove usage and disposal	Jeff W	Anita T
5a	Update current standard	Jeff W	Anita T
6a	Update and develop new standard and train all affected associates	Jeff W	Anita T
7a	Traing all support function in GMP and customer specific quality requirements	Jeff W	Anita T
8a	Develop 5S line side Kaban/train affected associates/Install Kanban board line side		

	TIMELINES 2008 MONTHS								METRIC	OWNER		
	8/10/08	8/30/08									STARTED	COMPLETED
1a									Training roster documentation database	Jeff W	7/10/2008	
2a									N/A	Terry G	7/10/2008	
3a												
4a									Training roster documentation database	Anita T	7/10/2008	
5a									Training roster documentation database	Anita T	7/10/2008	
6a									Training roster documentation database	Anita T	7/10/2008	
7a									Training roster documentation database	Anita T	7/10/2008	
8a									Training roster documentation database/Line side Kanban board	Anita T/Terry G	7/10/2008	

Product contamination A3.

A3 REPORT

Step #1. Project Name:

Computerized Maintenance Management System. A3 Statement: To reduce equipment related downtime by 30% thus increasing availability of revenue generating assets to improve business performance by avoiding associated costs of unplanned downtime.

Step #2. Background/Business Case (Why did you select this project):

Need. 10% equipment related downtime. Currently no system of maintenance computerize management control exists that is effective to properly manage, track, plan, schedule, execute, document asset management preservation actions.

Step #3. Initial Condition (Current State):

No equipment related downtime records or performance tracking is kept. No purchasing item journal is use to alert the re-ordering of critical spare parts. No work analysis is performed to track human performance in managing work orders and the effectiveness of physical asset management reliability.

No CMMS system is in use to properly manage inventory. No record keeping is current in use apart from a spreadsheet which is used to log oil filter information such as machine used on, type of filter etc. No physical counts, cycling counting or auditing is currently performed for oil filters, oil and coolant which is tied to a spreadsheet record.

Spare parts categorized by machine identifying number. Spare parts have been determined by 6 month's preventive maintenance requirements. Inventory planning is based on preventive maintenance schedules and is controlled by some by kanban cards for the oil filters and others by physical count for replenishment other strategic dedicated or critical spare parts are controlled by visual inspection.

Step #4. Desired Condition (Future State):

Putting in place a proactive plan to install a computerized maintenance management system software package by FaciliWorks. This CMMS will better maanage all work orders, preventive maintenance tasks and implement a perpetual inventory control system using this system and parts requisitioning system to better manage, track and report inventory spare parts to keep the right amount of inventory with overages and shortages and maintenance work analysis.

Benefits of a Computer Maintenance Management System

- Improved availability of revenue generating equipment
- Reduce inventory
- Improvement in equipment reliability allows WIP (work in process or safety stock) reduction
- Better accuracy
- Improved control and availability of spare parts
- Helps to build stronger planning and scheduling of PMs
- Avoid dead stocks and obsolesces
- Reduced paperwork and manual administration
- Work order generation
- Predictive maintenance
- Ability to measure results
- Access to historical data
- Tracking, traceability
- Supports laying the groundwork for the company TPM initiative

Step #5. Implementation Plan (Actions needed to get from Current to Future State):

ACTION	TARGET DATE	WHO	STATUS
Contact vendor of FaciliWorks to evaluate the CMMS and how it can help SBP maintenance efficiency and effectiveness.	14-Jul-09	BM	Done
Prepare information package to present ROI to bronze lean team. Schedule meeting with above and present for buy-in and support	23-Jul-09	BM/FW	Done
Present A3 to top management and lean bronze team members to decide to purchase FaciliWorks CMMS software.	6-Aug-09	BM/FW	Lean bronze team unanimous in support of A3
Present A3 to company President, (Paul Pelinsky), Product Manager/Manager of Engineering (Tim Jackson) and Financial Controller (Lawton Garland)	TBD	BM/FW	
Acquisition of FaciliWorks CMMS software	TBD	BM/JF	
Receive Faciliworks CMMS software	TBD	BM/MK	
Install CMMS software/hardware and commission	TBD	BM/MK	
Online user training	TBD	BM/MK	
Populate system with asset numbers equipment, work orders, inventory of spare parts etc.	TBD	BM/FW	
Train all affected personnel in use of CMMS (entering work orders etc.)	TBD	BM	

Step #6. Indicators/Measurable:

MEASURABLE	CURRENT STATE	FUTURE STATE	ACTUAL YTD	% CHANGE
Unplanned equipment downtime	10%	<3%		30%
Storages - Stock-outs	Not known	4 stock out per million inventory transactions		
Return on investment	-	110 % in 1 yr		
Payback Period	-	10 months		
See supporting information tab for details				

Project Owner:	Team Members:
John Doe	Bronze lean team members John Doe Jane Doe
Project Coach/Mentor:	
Fred Webberking	

Return on investment A3 for purchase of a Computerized Maintenance Management System. The layout and format in this A3 is not mine, but the A3 thinking behind is.

A3 Project Plan – Mistake (Poke-Poke) Proofing Steamer Process

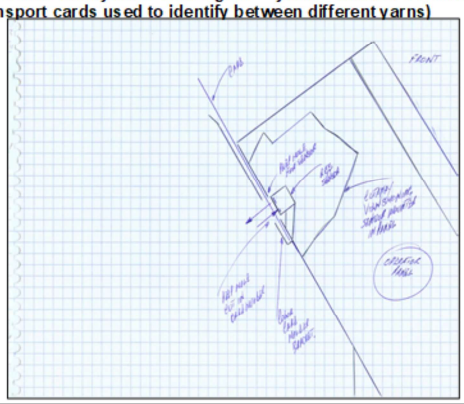
Project Description: Process step prevention of error in steam temperature being selected

Background / Business Case: New steamer; it is possible to process material at the wrong temperature setting and as a result ruin the entire lot of material.

Initial Condition (Current State): No mistake proofing devices or detection means presently exist on the new steamer and material can be process at an incorrect temperature thereby ruining the entire batch of material at a cost of approx. $10,000 US.

Implementation Plan: Purchase RGB sensor and have RGB programmed in such a matter that only the correct color transport card presented to the RGB sensor will allow the process to operate for the temperature selection. (The PLC will need to programmed such that a change of state at the sensor head is registered between each batch processed so the same or different color cards registers with the PLC of a new batch is to be processed e.g. yellow card/no card/yellow card again – yellow card/no card/red card and so on for all color transport cards used to identify between different yarns)

At the beginning of each shift this mistake-proofing device should be tested to qualify the process to run meaning that a deliberate attempt is made to make a mistake in any combination. If it does run. STOP! report it immediately



Proposed Condition (Future State): Installation of mistake-proof feature (RGB sensor and programming of the machine's PLC) to eliminate the possibility of processing material at the wrong temperature..

Example of an RGB sensor contact Keyence for application.

FACTS AND SUPPORTING SOURCE DATA:

CURRENT STATE: $05.00 PER POUND MATERIAL X BATCH CAPACITY OF MACHINE 2,000 POUNDS = $10,000.00 PER BATCH PROCESSED. DISCOUNTING IN-PROCESS VALUE, LOST OF PROFIT, RE-RUN OF MATERIAL COSTS, EXPEDITED FREIGHT BECAUSE OF INCREASE LEAD TIME, LABOR, LABOR OVERTIME, LOSS CAPACITY OF MACHINE NOW HAVING TO RUN THE MATERIAL AGAIN A RAW MATERIAL SCRAP LOSS OF $10,000.00 ALONE WILL BE INCURRED IF THE MATERIAL IS PROCESSED AT THE INCORRECT TEMPERATURE.

FUTURE STATE: COST OF SENSOR $500.00 + COST OF PROGRAMMING STEAMER'S PLC $1,000.00 = $1,500.00. COST OF MISTAKE $10,000.00 MATERIAL ALONE – COST OF MISTAKE PROOFING THE PROCESS $1,500.00 RESULTS IN AN IMMEDIATE ROI AT ANY OPPORTUNITY FOR THIS MISTAKE TO OCCUR.

Project Leader:	Core Team Members: A3 Author: Fred Webberking
Project Owner(s):	

Written By: Fred Webberking

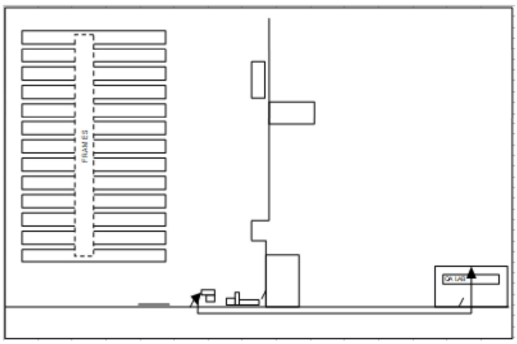
Poke-Yoke mistake proofing A3.

A3 Project Plan – Changeover Time Reduction (Spin QC Testing)

Project Description: Reduce time taken to conduct necessary quality tests associated with a changeover

Background / Business Case: Spinning: Excessive motion and time spent walking to and from quality lab to test weight of material by moving as much as possible quality testing apparatus line-side point of use. More cellular approach needed.

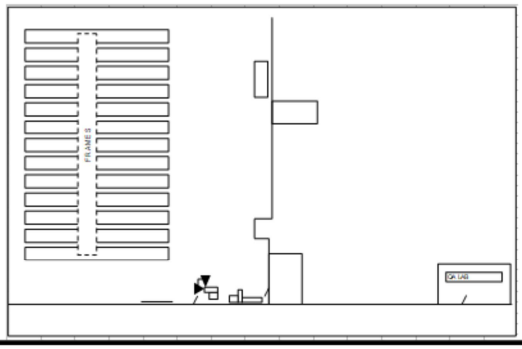
Initial Condition (Current State):



Implementation Plan:
Purchase additional digital weighing scales (already on order)
Register as new gauge to quality lab
Install line side to the shift foreman's testing bench and cover with a non-metallic box with a Perspex flip up access lid.

Indicators:	Current	Target	% Improvement
Time:	60 hours/yr.	0 hours/yr.	100%
Labor Cost:	$761.00/yr.	$0.00	100%
Investment Required: weighing scales	$700.00 (less than 1 year payback)		

Proposed Condition (Future State):



FACTS AND SUPPORTING SOURCE DATA:

CURRENT STATE: 60 PACES TO QA LAB 60 PACES BACK 120 PACES X 4 TIMES DAILY X 3 SHIFTS = 12 TIMES DAILY = 1,440 PACES. TIME TAKEN: 30 SECONDS X 2 TO QA LAB AND BACK 60 SECONDS X 4 = 4 MINUTES X 3 SHIFTS 12 MINUTES DAILY X 6 WORKING DAYS = 72 MINUTES (1HOUR 12 MINUTES EACH WEEK WASTED. LABOR COST: $12.95 /60 = $00.21 MINUTE X 4 $00.86 X 3 SHIFTS = $2.58 DAILY WASTED X 6 WORKING DAYS = $15.53 X 49 WORKING WEEKS OF YEAR = $761.45 MINUS COST OF SCALES $700.00 = $761.45 PAY BACK IN ONE YEAR.

FUTURE STATE: (NEGILIABLE) PACES TO QUALITY TEST APPARATUS (NEGILIABLE) PACES BACK TO QUALITY TESTING APPARATUS X 4 TIMES DAILY = (NEGILIABLE) PACES X 3 SHIFTS = (NEGILIABLE) PACES X 6 WORKING DAYS = (NEGILIABLE) PACES WEEKLY. TIME TAKEN 0 SECONDS X 2 = SECONDS X 4 TIMES DAILY X 3 SHIFTS = 0 SECONDS X 6 WORKING DAYS = 0 SECONDS (ALL NEGILIABLE) PER WEEK. 0 MINUTES PER YEAR. NO LABOR COST.

Project Leader:	Core Team Members: A3 Author: Fred Webberking
Project Owner/s	

Written By: Fred Webberking

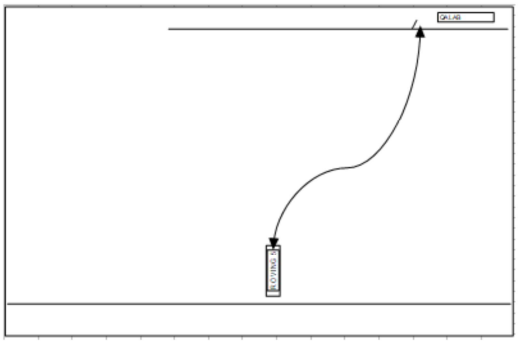
Process improvement A3.

A3 Project Plan – Changeover Time Reduction (Roving Dept.)

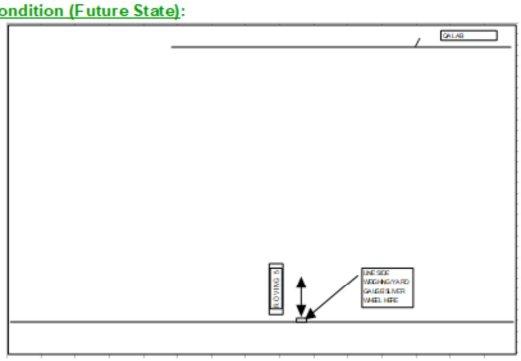
Project Description: Reduce time taken to conduct necessary quality tests associated with a changeover

Background / Business Case: Roving: Excessive motion and time spent walking to and from quality lab to test weight of material by moving as much as possible quality testing apparatus line-side point of use. More cellular approach needed.

Initial Condition (Current State): FMV5 (as an example)



Proposed Condition (Future State):



Implementation Plan:
Purchase additional digital weighing scales, yard gauge and roving/sliver wheel
Register as new gauges to quality lab
install quality testing apparatus in a centralized location to all roving processes on the shop floor.

Indicators:	Current	Target	% Improvement
Time:	60 hours/yr.	10 hours/yr.	- 50 hours/yr. (83%)
Labor Cost:	$777.00/ yr.	$129.50/ yr.	$647.50/yr.(83%)
Investment Required:	Roving sliver reel & weighing scales		$1500.00

FACTS AND SUPPORTING SOURCE DATA:

CURRENT STATE: 110 PACES TO QA LAB 110 PACES BACK 220 PACES X 4 TIMES DAILY X 3 SHIFTS = 2,640 PACES DAILY X 6 WORKING DAYS = 15,840 PACES WEEKLY. TIME TAKEN: 30 SECONDS X 2 TO QA LAB AND BACK 60 SECONDS X 4 TIMES DAILY = 240 SECONDS X 3 SHIFTS = 720 SECONDS X 6 WORKING DAYS = 4,320 SECONDS (72 MINUTES OR 1 HOUR 12 MINUTES) PER WEEK WASTED IN THIS MOTION (60 HOURS A YEAR BASED ON 49 WEEK YEAR). LABOR @ $12.95 AN HOUR X 60 HOURS = $777.00 PAID IN WASTED MOTION.
FUTURE STATE: 5 PACES TO MACHINE 5 PACES BACK TO CENTRALIZED QUALITY TESTING APPARATUS X 4 TIMES DAILY = 10 PACES X 3 SHIFTS = 30 PACES X 6 WORKING DAYS = 180 PACES WEEKLY. TIME TAKEN 5 SECONDS X 2 = 10 SECONDS X 4 TIMES DAILY X 3 SHIFTS = 120 SECONDS X 6 WORKING DAYS = 720 SECONDS (12 MINUTES) PER WEEK. 588 MINUTES PER YEAR (10 HOURS A YEAR BASED ON 49 WEEK YEAR). LABOR @$12.95 AN HOUR X 4 TIMES DAILY X 3 SHIFTS $38.85 X 10 HOURS = $129.50

Project Leader:	Core Team Members:
	A3 Author: Fred Webberking
Project Owner/s:	

Written By: Fred Webberking

Process improvement A3.

A3 Project Plan – Changeover Time Reduction (Roving Dept.)

Project Description: Reduce time taken to conduct necessary quality tests associated with a changeover

Background / Business Case: Roving: Excessive motion and time spent walking to and from quality lab to test weight of material by moving as much as possible quality testing apparatus line-side point of use. More cellular approach needed.

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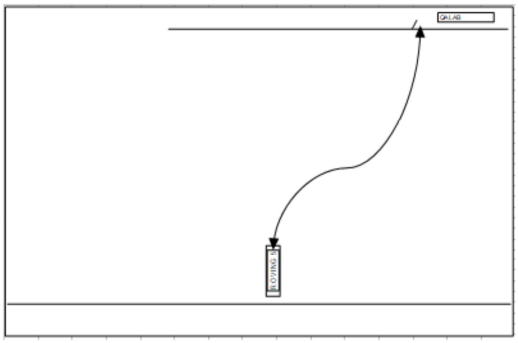
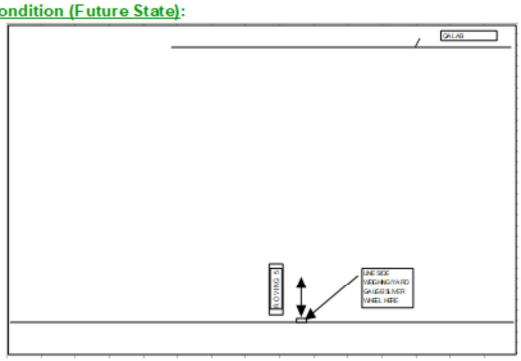


Implementation Plan:
Purchase additional digital weighing scales, yard gauge and roving/sliver wheel
Register as new gauges to quality lab
install quality testing apparatus in a centralized location to all roving processes on the shop floor.

Indicators:	Current	Target	% Improvement
Time:	60 hours/yr.	10 hours/yr.	- 50 hours/yr. (83%)
Labor Cost:	$777.00/ yr.	$129.50/ yr.	$647.50/yr.(83%)
Investment Required:	Roving sliver reel & weighing scales		$1500.00

Proposed Condition (Future State):



FACTS AND SUPPORTING SOURCE DATA:

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FUTURE STATE: 5 PACES TO MACHINE 5 PACES BACK TO CENTRALIZED QUALITY TESTING APPARATUS X 4 TIMES DAILY = 10 PACES X 3 SHIFTS = 30 PACES X 6 WORKING DAYS = 180 PACES WEEKLY. TIME TAKEN 5 SECONDS X 2 = 10 SECONDS X 4 TIMES DAILY X 3 SHIFTS = 120 SECONDS X 6 WORKING DAYS = 720 SECONDS (12 MINUTES) PER WEEK. 588 MINUTES PER YEAR (10 HOURS A YEAR BASED ON 49 WEEK YEAR). LABOR @$12.95 AN HOUR X 4 TIMES DAILY X 3 SHIFTS $38.85 X 10 HOURS = $129.50

Project Leader:	Core Team Members:
	A3 Author: Fred Webberking
Project Owner/s:	

Written By: Fred Webberking

Process improvement A3.

A3 Project Plan – Facility Floor Space Organization (5S)

Project Description: Utilize existing facility floor space in most effective manner by focusing on revenue-generating (value-added) activity and elimination of waste (non-value-added activity) through a comprehensive 5S initiative

Background / Business Case: The current level of floor space utilization for revenue-generating activity is not optimized. The location of certain processes does not necessarily facilitate the most efficient flow of information and material through the value stream

Initial Condition (Current State): There is a significant amount of facility floor space assigned to non-revenue generating activity (inventory) and non-value-added activity (inventory storage and un-needed items). In some cases, processes are not located in the optimum location to facilitate efficient material and information flow

Implementation Plan:
Develop and implement a comprehensive facility-wide 5S initiative:
- Sort
- Set in Order
- Shine
- Standardize
- Sustain

Proposed Condition (Future State): Facility layout that compliments the product value stream

Quantitative goals of the project:
- 20% Increase in Sales/square ft.
- 20% Increase in Sales/associate

Qualitative goals of the project:
- Reduction in unnecessary inventory
- Improved associate morale through participative 'lean' culture management style
- Better associate job satisfaction
- Increase in associate involvement through empowerment
- Elimination of searching waste by eliminating disorganization
- Improved coordination of work content through standardization and visual plant management reducing confusion and mistakes
- Improved safety of work area

Project Leader:	Core Team Members:
Project Owners):	A3 Author: Fred Webberking

Written By: Fred Webberking

5S A3.

A3 Project Plan – Maintenance best practices (# 17 spinning frame)

Project Description: Best practices in maintenance tasks

Background / Business Case: Detrimental and inefficient maintenance practices have been identified that can be remedied. Repeat occurrences of equipment downtime

Initial Condition (Current State): Case in point: A gear had worn out and needed to be replaced for the apron drive shaft on #17 spinning frame. A hammer was used to drive the shaft off the gear while still attached to the gearbox casing. This unfortunately 'mushroomed' the end of the drive shaft making it impossible to pass through the worn gear bore. Measures had to be taken as the machine had by this time been down for over an hour. In the end the shaft had to be cut to allow it to pass out through the gearbox casing. Wiping a grease nipple off with a clean rag before pushing on the grease gun coupler is a good example of a maintenance best practice to prevent dirt from being pumped into the bearing being serviced. Removing a bearing from a shaft with a hammer isn't.

Implementation Plan: Establish a "Lessons Learned" approach to maintenance methods that focuses on preventing recurrence to downtime through the implementation of a root-cause analysis and problem-solving methodology and systemic improvements. Each unplanned interruption to production which is equipment related should warrant a documented and systematic investigation to develop a corrective action to prevent the recurrence of the interruption.

Proposed Condition (Future State): Lessons learned: Each time a mistake of this kind occurs we should learn from it. Maintenance manager should meet with his entire team and through the use of a formal corrective action process inform and instruct a single-point-lesson regarding how the correct practice for removing bearing and gears (and the like) from drive shafts. Pullers and soft metal drifts are used not hammers.

Facts and supporting source data:

At the time of the mistake the spinning frame was running material that is $9.00 a pound and the standard machine capacity for the material being produced was 1,500 lbs a day. Revenue capacity $13,500.00 per day.

Time estimate to replace gear using best practices - 30 minutes $282.00 loss
Time actually taken to replace gear using current practice - 300 minutes $2,820.00 loss
Δ $2,538.00

Project Leader:	Core Team Members: Maintenance department
Project Owner(s): All maintenance department	A3 Author: Fred Webberking

Written By: Fred Webberking

TPM A3.

A3 Project Plan – Equipment Spare Parts Organization (TPM)

Project Description: Effective and efficient use of spare parts using CMMS

Background / Business Case: Impressive use of colored coded totes to store machine and equipment spare parts to indicate which processes or machines they related to. Though a good start it has fallen into complete mismanagement.

Initial Condition (Current State): No means of inventory control exists for machine or equipment spare parts. A $3.00 spare part stock-out can keep a process in a failed state if its not available costing thousands of dollars a day in lost production.

Implementation Plan:
Identify critical spare parts deemed necessary to have on hand

- Update current 'Data Stream' MP2 to MP2 for MS Access (immediate action required)
- Sort parts by process
- Sort parts by machine
- Sort parts by manufacturer
- Sort parts by category (electrical/mechanical)
- Sort parts by determining min/max quantities to be carried
- Sort parts by physical size
- Determine totes sizes necessary based on min/max and physical size of spare part
- install spare parts to totes to spare parts room utilizing floor to ceiling of the walls
- Enter all necessary information into CMMS part numbers, vendors, lead times, cost centers, physical locations, purchasing journals, min/max replenishment levels etc.
- Every spare parts totes to have labels attached to them indicating description of part, part number, physical location and bar code and where possible attach spare part label to spare part itself
- Install dedicated computer to spare parts rooms (doesn't have to be new or expensive as it will only be used for accessing 'Data Stream' MP2 CMMS)
- No movement of spare parts without movement of data in CMMS (this must be strictly enforced)
- Install keypad lockset to all spare parts rooms

Proposed Condition (Future State): Categorize the machine spare parts and manage them accordingly: Focus on the critical spare parts (OEM spare parts) that if not immediately available can keep the machine in a failed state. Plan and procure inventory of critical spare parts based on lead time. Scheduled restoration spare parts (parts required for overhauls). Scheduled discard spare parts (items that are discarded as part of routine maintenance such as oil/air filters). These categories of spare parts ought to be very tightly (lock and key for unattended store room) managed by those maintenance personnel directly assigned to that machine or production line

Goals of Project:
Reduced equipment downtime due to waiting on replacement parts

Project Leader:	Core Team Members:
Project Owner(s):	A3 Author: Fred Webberking

Written By: Fred Webberking

Strategic dedicated equipment spare parts inventory A3.

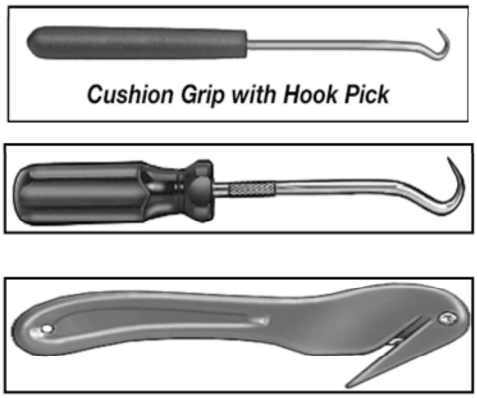
Project Plan – Maintenance best practices (Roving apron belts)

Project Description: Removing lint from roving belts (FMV5)

Background / Business Case: Use of hook knives to remove lint has caused cutting of the roving apron belts resulting in accelerated deterioration and unnecessary down time of roving machines to change out roving apron belts

Initial Condition (Current State): The 'normal' deterioration or life cycle of the roving apron belts should be at least one year of production work.

Implementation Plan: Select and procure different tool that are available from Mcmaster-Carr. Though these tools have sharp tips which can easily hook up lint they do not have a cutting edge to them.



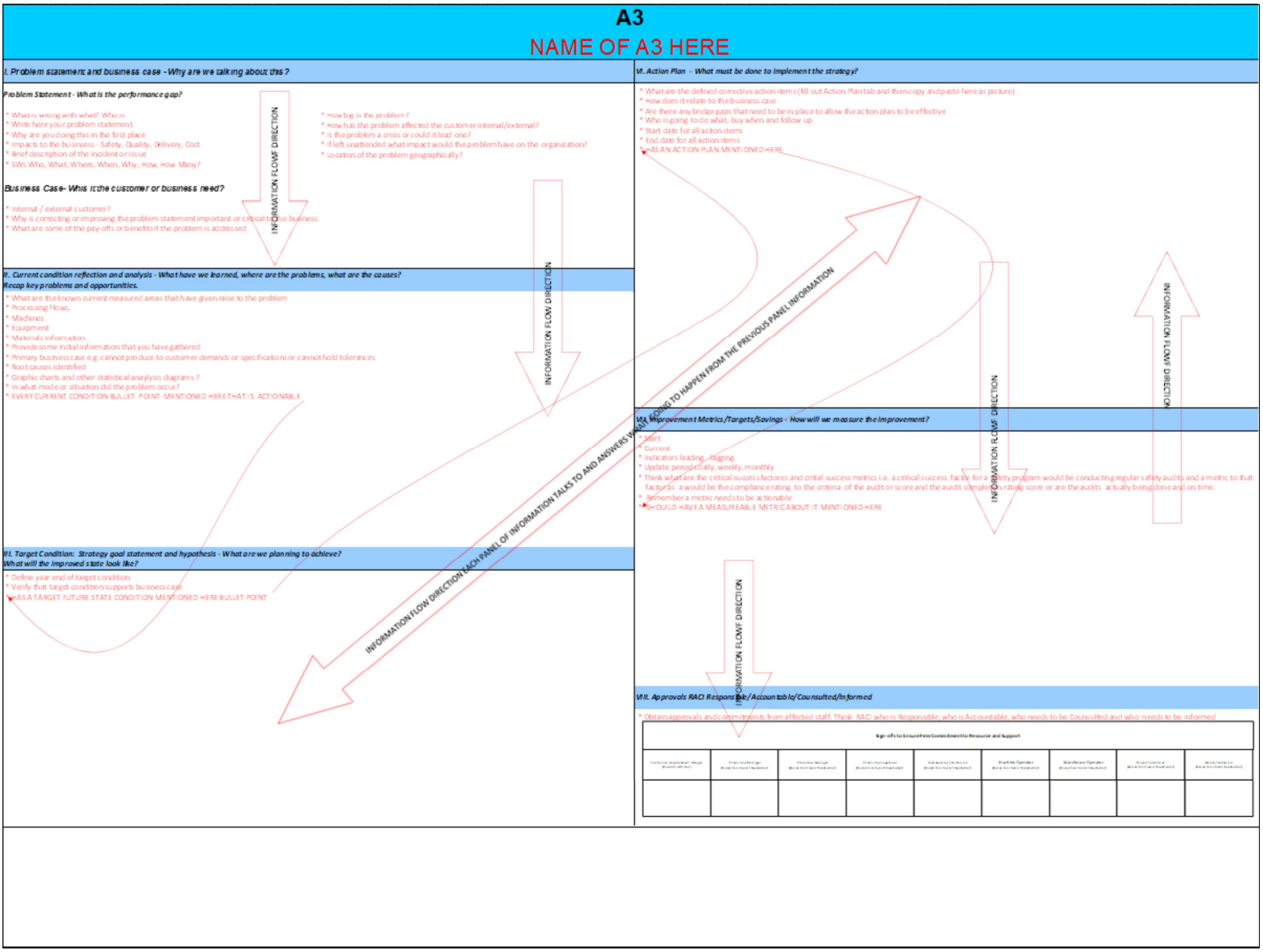
Proposed Condition (Future State): Routinely the operator of the machine has to remove accumulated lint that is entangled in, on and around the roving apron belts. Presently a hooked carpet or hooked box cutter knife is used. Sometimes the apron belt is cut accidentally rendering its useful life to 3 months or less. Ban the use of these types of hooked blades knives and use other means to remove lint. Suggestions opposite.

Cost of apron belt	$40	X 4 OCCURENCES/YEAR	$160
Time taken to change out apron	2 HR	X 4 OCCURENCES/YEAR	8 HRS
Labor @ $13.00 hr (two man job)	$52	X 4 OCCURENCES/YEAR	$416
Loss production for 2 hours	$500	X 4 OCCURENCES/YEAR	$2,000
Cost Avoidance			$2,576

Project Leader: Allen Presley	Core Team Members:
Project Owner's): Joe and all other shift foreman	A3 Author: Fred Webberking

Written By: Fred Webberking

Process improvement A3.



This is a different style of A3 but keeping with the 4 to 7 panels of current state to future state. This is an instructional guide that I created to assist other A3 users on how to use the A3 thinking process.

My first A3 was composed in 1999 and was drafted on A3 (279 × 432 mm) size paper manually with pencil. A lot of A3s have gone electronic now typically using MS Excel. This another such version using Excel. Using Excel you can use multiple tabs to enter additional information about the A3 such as an evidence tab with hyperlinks to A3 driven project folders, a countermeasure tab where you explain why an action is late or pending.