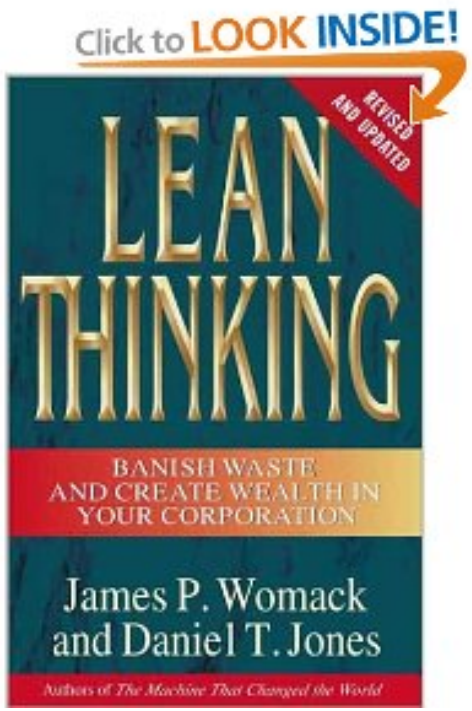
Job Methods

A Path to Engage in Daily Frontline Improvement

Nappanee Window

Extrusion Mill

Turning point for me



Turning Point

- Lost 40m/yr business in the downturn
- Sold off assets and saw all of our mistakes
- only dabbled with lean
- Saw many of the same issues at Alum Trailer but **now saw thru lean eyes**

Company Overview

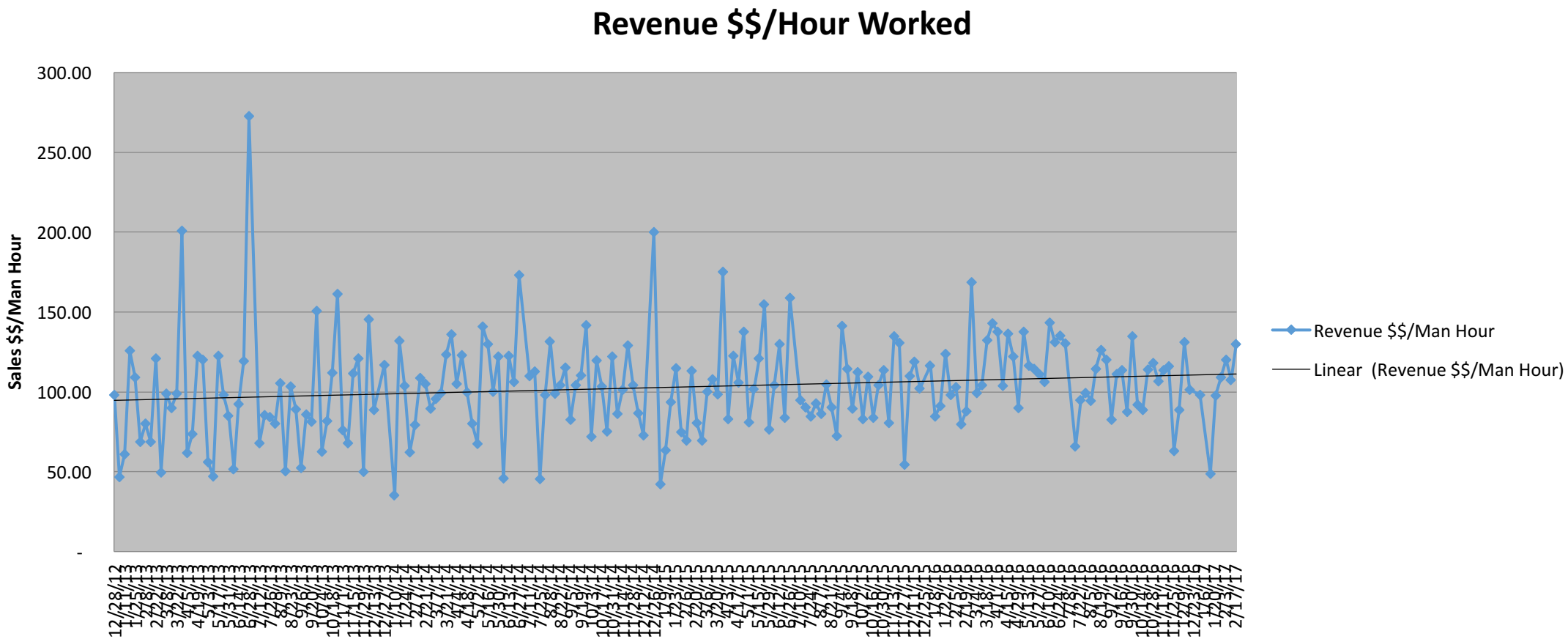
- Founded 1999
- Purchasing in Cargo Trailer Co.
- Elkhart County- Trailer Capital
  - RVs
  - Cargo Trailers

Products

True North

- Respect for People
  - Safety of Work
  - Safety of a secure paycheck for all
- 100% On Time Delivery
- 100% Value Added
- 15% annual productivity Improvement
- Perfect Quality In the Hands of the customer

Productivity



Jim Lancaster’s new book:

- "I have always had a problem convincing CEOs of one simple thing. They need to take the time to go where value is actually created. They need to learn to see the work and to see how their management system utterly fails to support the daily work. My most important advice is to screw up your courage, put aside your daily distractions, and walk out into the work to see how value is created at the frontline."

JM 4 Step Method

1. Breakdown the Job
2. Question Every Detail
3. Develop the New Method
4. Work out ideas with others

How to Improve
JOB METHODS POCKET CARD

A practical plan to help you produce GREATER QUANTITIES of QUALITY PRODUCTS in LESS TIME, by making the **best use** of **manpower**, **machines** and **materials**, **now available**.

Step 1 – BREAK DOWN the job

1. List all details of the job **exactly** as done by the **Present Method**.
2. Be sure details include all:
   - Material Handling
   - Machine Work
   - Hand Work

Step 2 – QUESTION every detail

1. Use these type questions:
   WHY is it necessary?
   WHAT is its purpose?
   WHERE should it be done?
   WHEN should it be done?
   WHO is best qualified to do it?
   HOW is the 'best way' to do it?
2. Also question the:
   Materials, machines, equipment, tools, product design, layout, work-place, safety, housekeeping.

Step 3 – DEVELOP the new method.

1. **ELIMINATE unnecessary** details
2. **COMBINE** details when practical
3. **REARRANGE** for better sequence
4. **SIMPLIFY** all **necessary** details:
   - Make the work **easier** and **safer**.
   - **Pre-position** materials, tools, and equipment at the best places in the **proper work area**.
   - Use **gravity-feed** hoppers and **drop-delivery** chutes.
   - Let **both hands** do **useful** work.
   - Use **jigs** and **fixtures** instead of hands for holding work.
5. **Work out** your idea **with** others.
6. Write up your proposed new method.

Step 4 – APPLY the new method

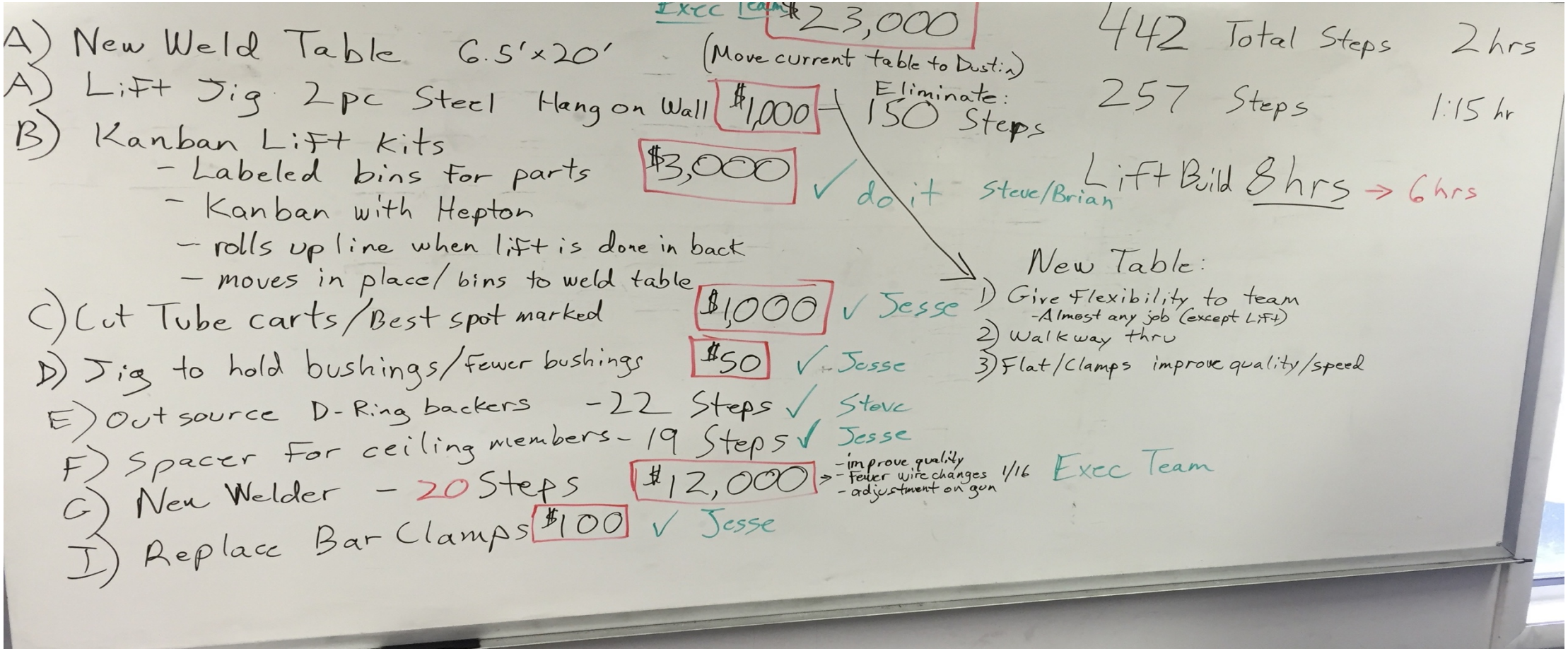
1. **Sell** your proposal to your **manager**.
2. **Sell** the new method to the **operators**.
3. Get final approval of all concerned on **Safety, Quality, Quantity**, and **Cost**.
4. Put the new method to work. Use it until a **better way** is developed.
5. Give **credit** where credit is due.

THE BILAS GROUP, LLC

Step 1,2,3

Present Method Breakdown — Step 1 - Breakdown the Job: List **all** details	Notes	Questioning and Development of New Method — Step 2 - Question every detail - List your ideas - Don't trust memory: Challenge Yourself	Be Specific	There May Be A Better Way	Step 3 Develop: Renumber your details
A detail is evey single thing that is done including every inspection and every delay or waiting period. Be sure details include all material handling, machine work, and hand work.	List all distances, tolerances, safety, scrap, time used, weights, etc. Also list long reaches, tugging, holding, stooping, bending, or awkard moves.	**WHY** is this detail necessary? **WHAT** useful purpose does this detail serve? has to be done ✓ 1) Does this detail add quality? Cut cost? (2 3) Improve safety? Increase production? (4 If not - can I do my job without this detail? X	**WHERE** should this detail be done? Which machine,bench, equipment? **WHEN** should this detail be done? Before some other detail? Another time? **WHO** is qualified to do this detail? From standpoint of experience? Skill? Physical strength? Who is available?	**HOW** is the best way to do this detail? Can you improve on the materials, machines, equipment, tools, product design, workplace, safety, or housekeeping? Can you make the work easier or safer by using jigs or fixtures, both hands, or gravity feed hoppers or drop delivery shutes? Can you pre-position in proper work area?	
What operation or handling preceeds your job? Layout / Weld Lift Platform			hang on the wall	(A) *New Laser cut jig / 2 pcs - expand tab	1
1 Set Jig	3:10	1,4 ✓		(B) *Dedicated lift cart - new design 1	2
2 Set Side pc #1	15'	X			X
3 walk to cart	10'	✓			3
4 get ends		X			X
5 W to cart	10'	✓			4
6 set corner braces		X	Just before welding		X
7 put on helmet/gloves	8'	✓		(C) *Better cart / Move closer 1	5
8 walk to cart side pc #2	25' → 20'	✓			6
9 Walk + set	20' → 15'	✓			7
10 W to cart side pc #3	20'	✓	✓	(B) Roll up to best spot 2	8
11 Set side pc	10'	✓	✓		9
12 W to kit box	30' → 10'		✓		10
13 Get bushings		✓		(D) *Jig to hold bushings 1	11
14 walk to NW Corner	20' → 5'	✓			12
15 Measure / mark	16'	X		(D) *Possibly go to 2 or 1 2	X
16 Mark with Square		✓			13
17 Set out bushings	10'	✓		(G) 1 New Welder	14
18 walk back to welder	18'	✓			15
19 → weld on bushing #1	15'	X		(D) 3	X
20 adjust welder		✓			16
21 weld bushing #2		? X			X
22 weld bushing #3		✓			17
23 put gun on NW corner	8'	✓			18
24 Set side #3		X			X
25 W to cart	10'	✓			19
26 Set side # 4		✓		Finish the part at supplier	20
27 Get plates				½ (E) *Possible Kanban (Southwest Laser)	
28					
29		X			
30 Get jig for D-Ring					
What is the next operation or where does material go from here?		**ELIMINATE** all unnecessary details	**COMBINE** and **REARRANGE** for better sequence when practical	**SIMPLIFY** ALL NECESSARY DETAILS Renumber details in new order in right hand column	

Step 4: Work out your ideas with others

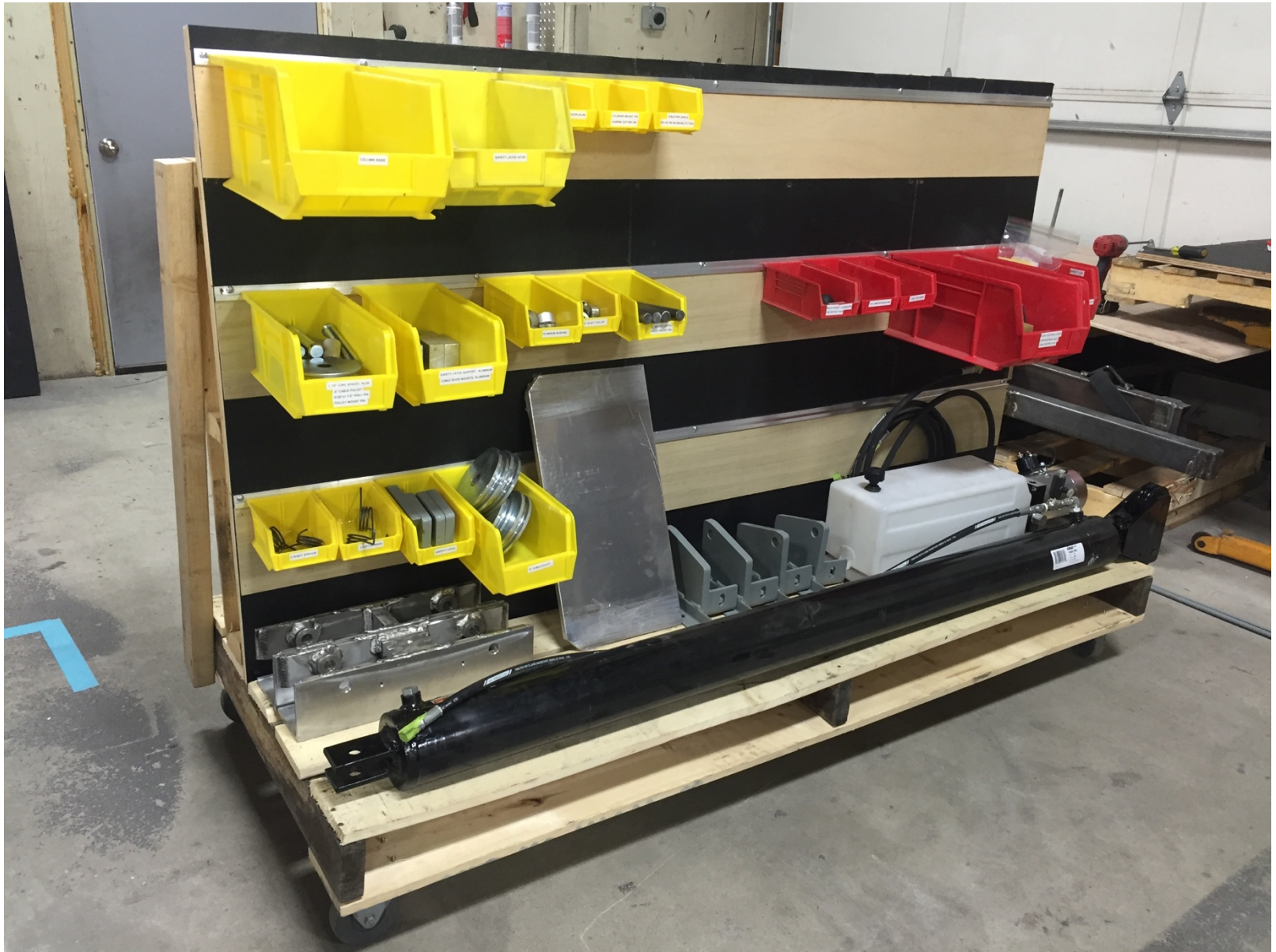


PROJECTS TO DATE

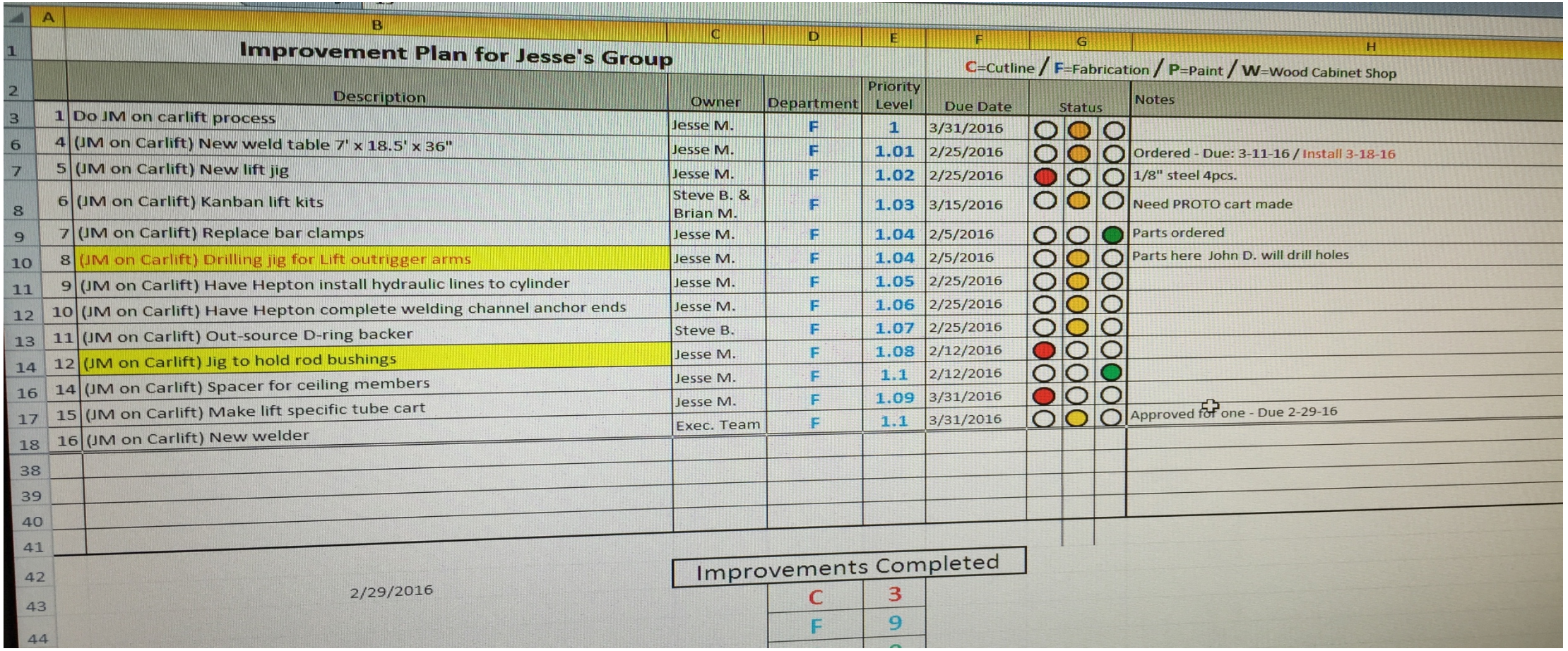
- HYDROLIC LIFT FRAME
- PREMIUM ESCAPE DOOR WELD FRAME
- VS6 GENERATOR INSTALL
- VS3 WELD STEEL GOOSENECK BUNK
- VS3 HYDROLIC LIFT PUMP
- INPUT CHANGE REQUESTS INTO LEAN KIT
- CUT TUBES FOR FRAME IN VS1
- VS6 INSTALL CONTROL PANEL AND HOOK UP ALL WIRES

Parts kit from Hepton

New Kanban Kit Idea



Remaining Action Items



Improvement Plan for Jesse's Group

C=Cutline / F=Fabrication / P=Paint / W=Wood Cabinet Shop

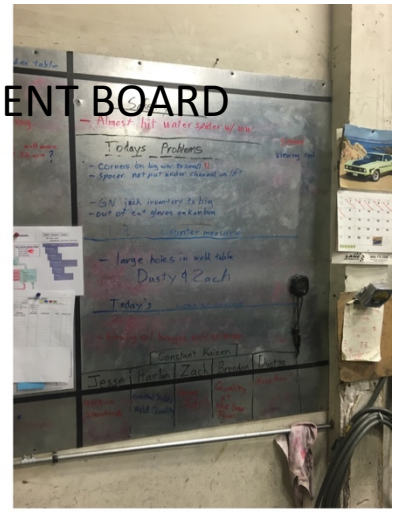
	Description	Owner	Department	Priority Level	Due Date	Status	Notes
1	Do JM on carlift process	Jesse M.	F	1	3/31/2016		
4	(JM on Carlift) New weld table 7' x 18.5' x 36"	Jesse M.	F	1.01	2/25/2016		Ordered - Due: 3-11-16 / Install 3-18-16
5	(JM on Carlift) New lift jig	Jesse M.	F	1.02	2/25/2016		1/8" steel 4pcs.
6	(JM on Carlift) Kanban lift kits	Steve B. & Brian M.	F	1.03	3/15/2016		Need PROTO cart made
7	(JM on Carlift) Replace bar clamps	Jesse M.	F	1.04	2/5/2016		Parts ordered
8	(JM on Carlift) Drilling jig for Lift outrigger arms	Jesse M.	F	1.04	2/5/2016		Parts here John D. will drill holes
9	(JM on Carlift) Have Hepton install hydraulic lines to cylinder	Jesse M.	F	1.05	2/25/2016		
10	(JM on Carlift) Have Hepton complete welding channel anchor ends	Jesse M.	F	1.06	2/25/2016		
11	(JM on Carlift) Out-source D-ring backer	Steve B.	F	1.07	2/25/2016		
12	(JM on Carlift) Jig to hold rod bushings	Jesse M.	F	1.08	2/12/2016		
14	(JM on Carlift) Spacer for ceiling members	Jesse M.	F	1.1	2/12/2016		
16	(JM on Carlift) Make lift specific tube cart	Jesse M.	F	1.09	3/31/2016		
17	(JM on Carlift) New welder	Exec. Team	F	1.1	3/31/2016		Approved for one - Due 2-29-16

2/29/2016

Improvements Completed	
C	3
F	9

HYDROLIC LIFT FRAME PG 2

DAILY IMPROVEMENT BOARD



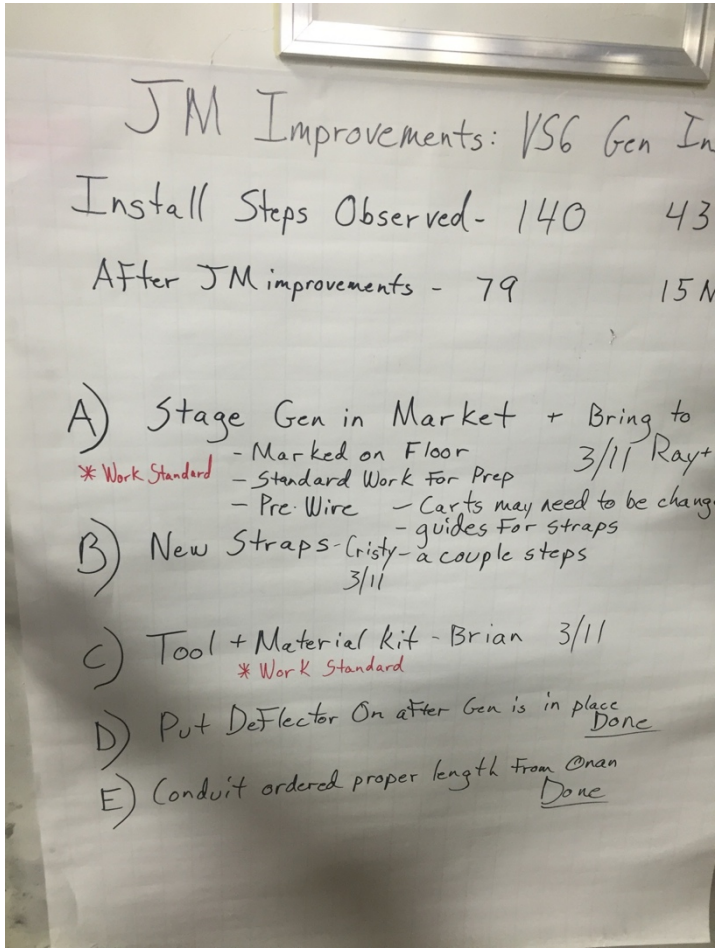
REMAINING TASKS:

1. FINISH GETTING KITS KANBAN
2. BETTER DESIGNED CARTS FROM CUTLINE
3. LESS CLAMPING AND DRILLING
4. NEW LIFT DESIGN WITH STANDARD WORK DEVELOPED BY DESIGNERS AND JESSE

Time Before and Time After

- Fabricating the lift frame
  - Before 2hrs
  - After 1.5 hrs

VS6 GENERATOR INSTALL



Other Changes

- Prep gen before it gets to the line
- Do most of the work while its sitting on the tongue before its hard to reach
- Better straps to lower in place
- Put deflector on after gen is installed

Time Before and Time After

- BEFORE- 48 MINUTES
- AFTER 32 MINUTES
- SAFER INSTALLATION PROCESS
- HIGHER QUALITY WIRING CONNECTIONS
- ERGENOMICALLY BETTER WORKING CONDITIONS

VS3 HYDROLIC LIFT PUMP

- TIME BEFORE 20 MINUTES IN THE TRAILER WITH 40% OF TIME SPENT WALKING
- TIME AFTER 10 MINUTES ON KIT TABLE AND 5 MINUTES IN TRAILER

Electrical System Prep and Install

Installation of Electrical Systems

Breaker Panel, Transfer Switch and Disconnect

Time Before and Time After

- Steps before improvement-140
- After improvement-79
- Time before-43 minutes
- Time after-18 minutes!!!
- The work is easier and less tiring
- Better quality

What did we learn?

- Why do we not see walking as waste?
- Line work hasn’t changed much since we started our lean journey
- Kitting and prepping parts is first on the list of improvements almost every time

Walking is 30-50% of our enclosed trailer line work

- How can we all recognize walking as waste and start to eliminate
- Kaizen event to introduce kitting and parts prep person for Value Stream 2
- Everyone learn to do JM-I will teach you

VS6 INSTALL CONTROL PANEL AND HOOK UP ALL WIRES

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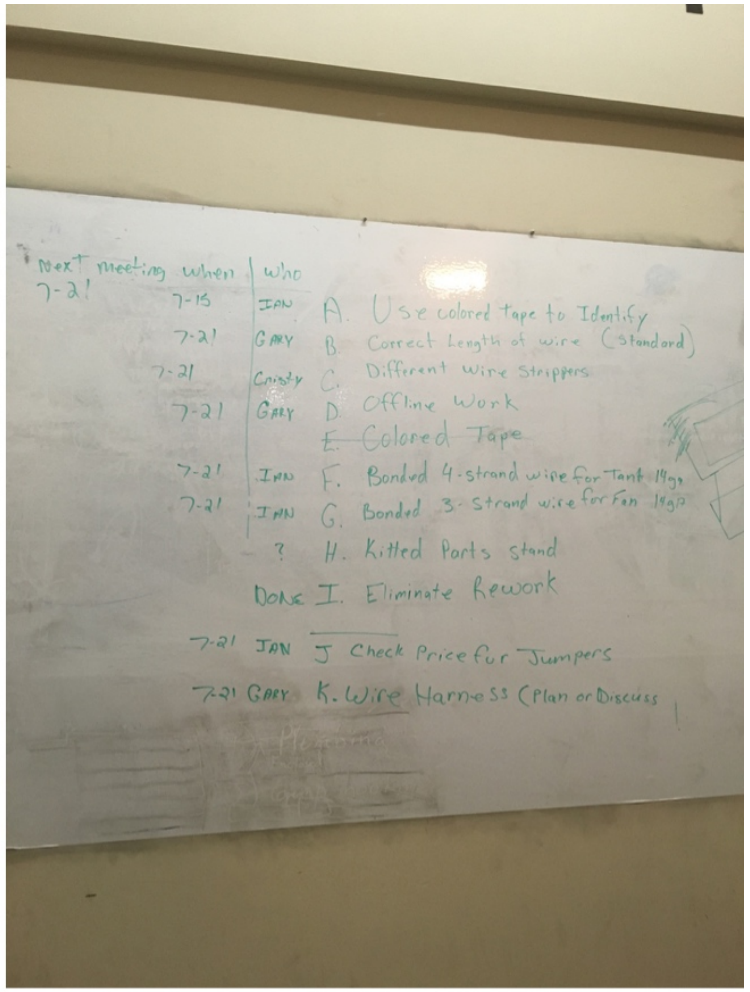


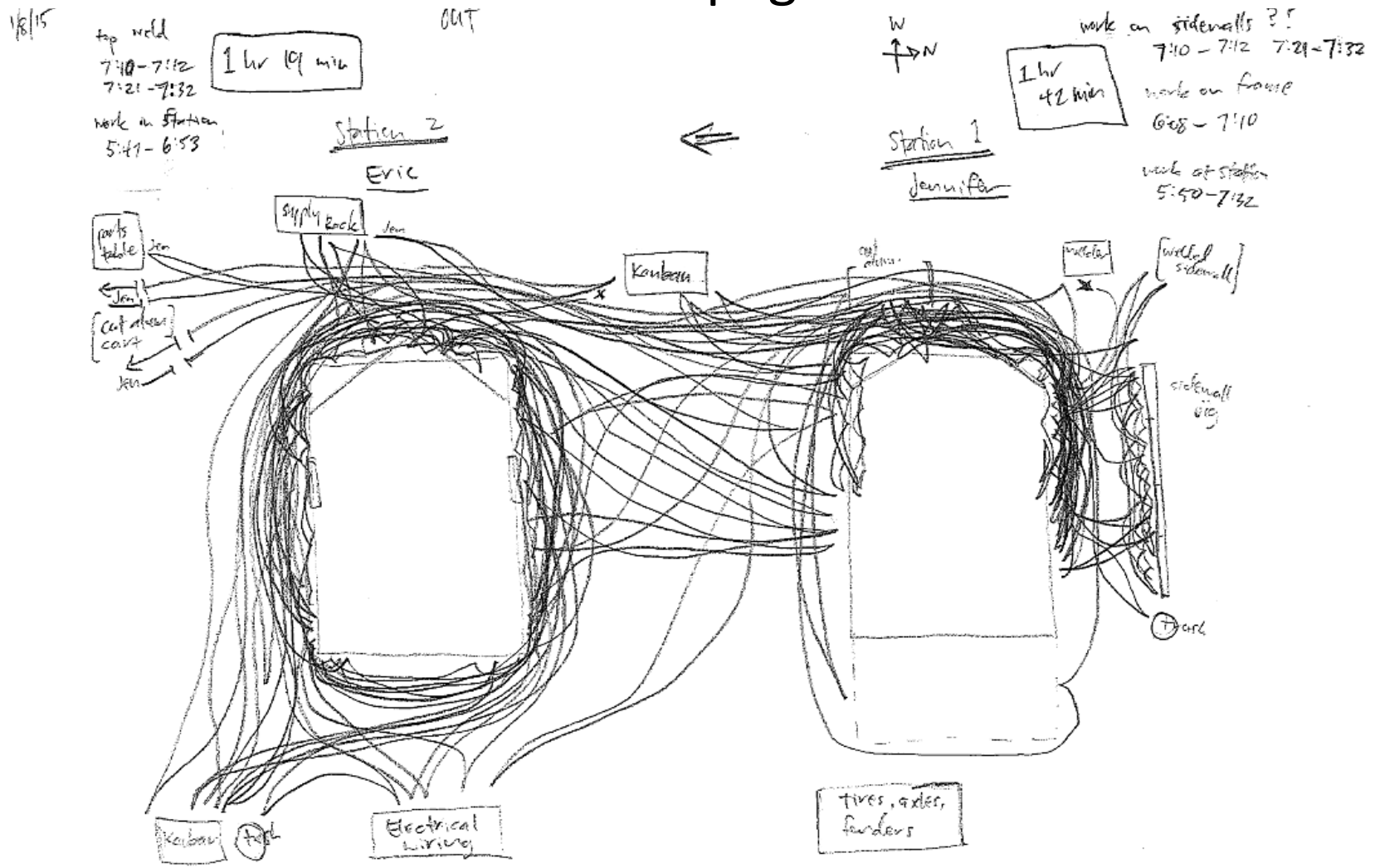
Time Before and Time After

Standard Work

The Final Frontier

Open Utility Frame Table

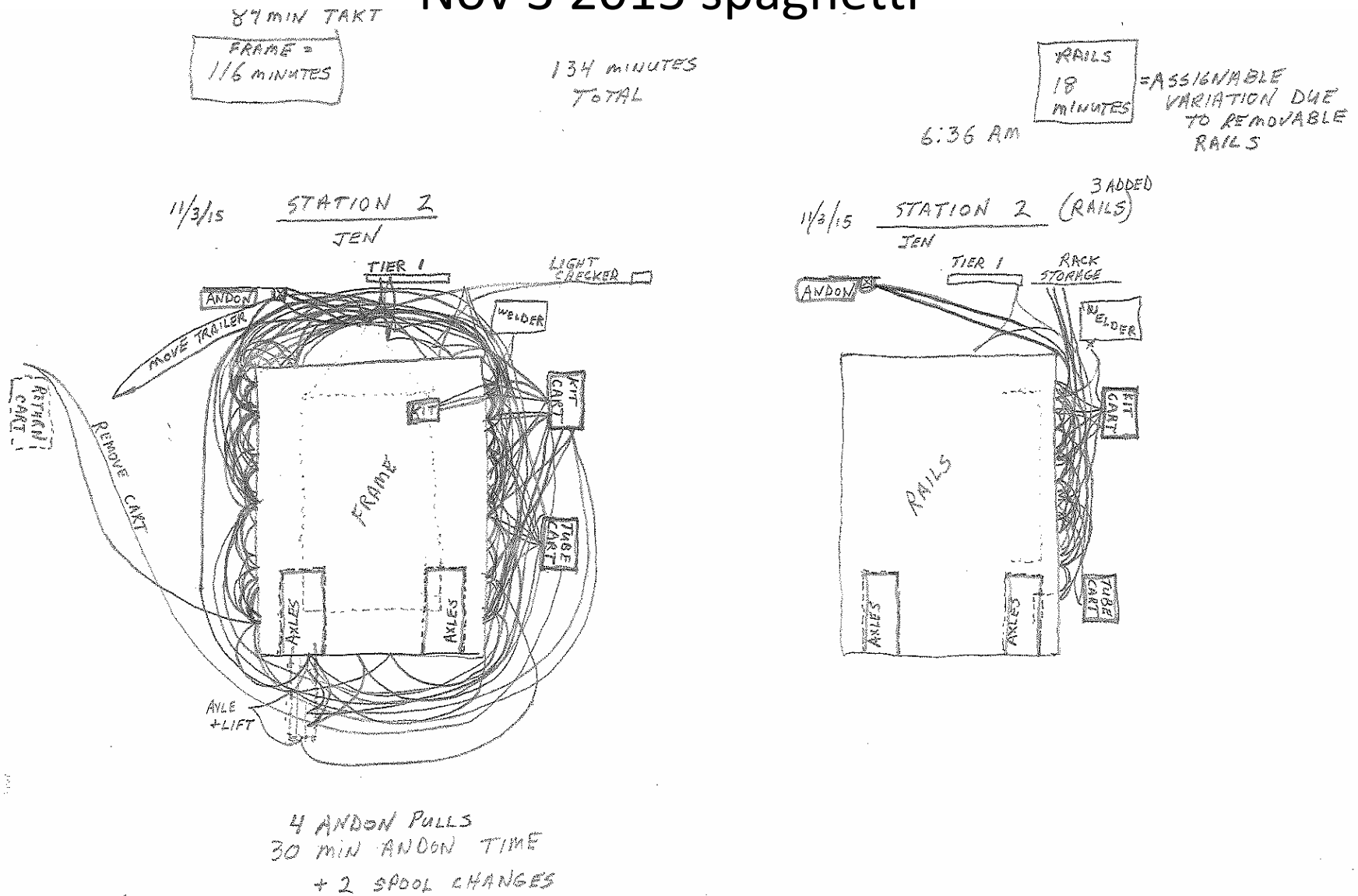
Jan 8 2015 spaghetti



Cycle time 181 minutes

Open Utility Frame Table

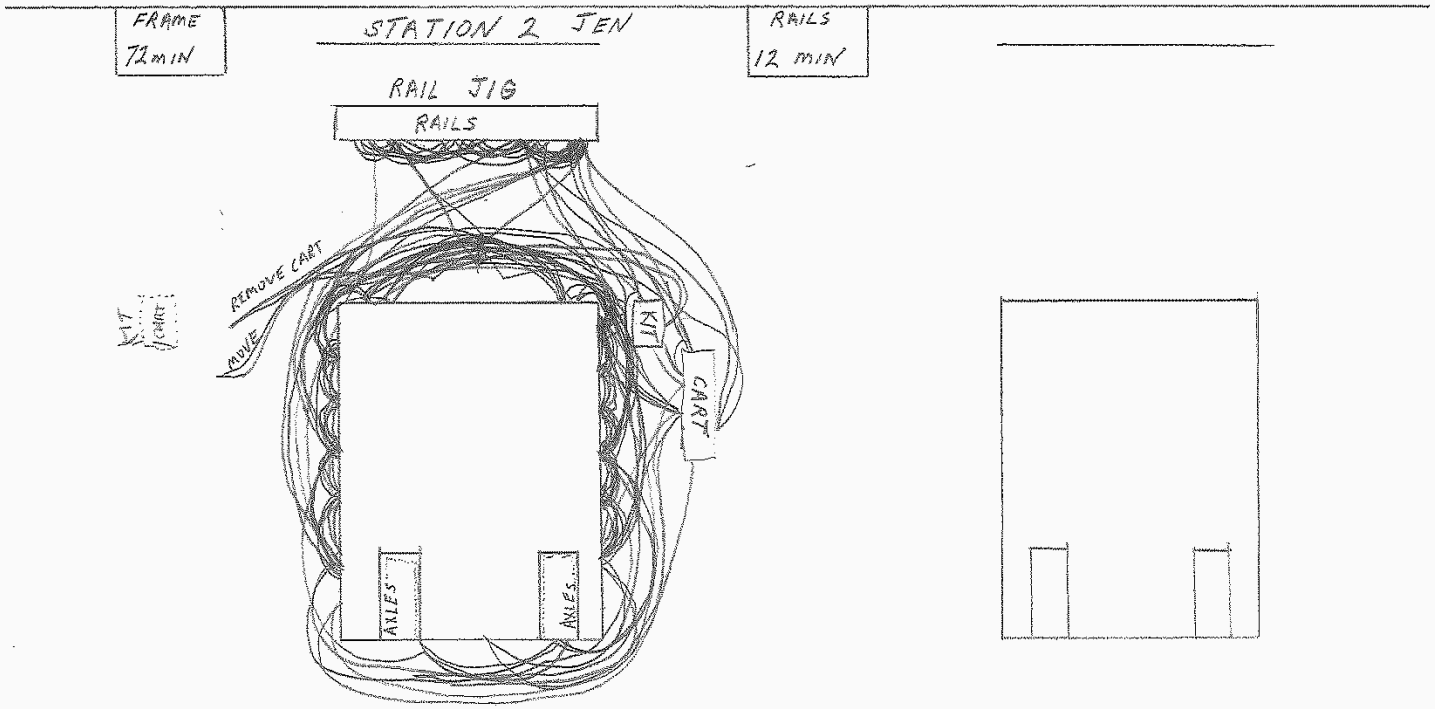
Nov 3 2015 spaghetti



Cycle time 134 minutes

Open Utility Frame Table

Feb 24, 2016 spaghetti



Cycle time 84 minutes

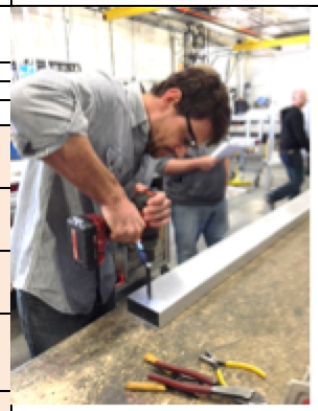
Standard Work

VSO	OUT	Parts / Tools	Station1
Revision Date:	4/7/16	Drill, Fish tape, 1" bit, Crimpers, Riv Nuts, Butt Connectors, Bell Caps,	Bumper Prep
Edited by:	Eric Goff		

Key: OSHA | Safety | Quality Q | Training JI | Travel

Ref: Reference docs: OUT Standard #21, JIBs 3 102, 103 and 104

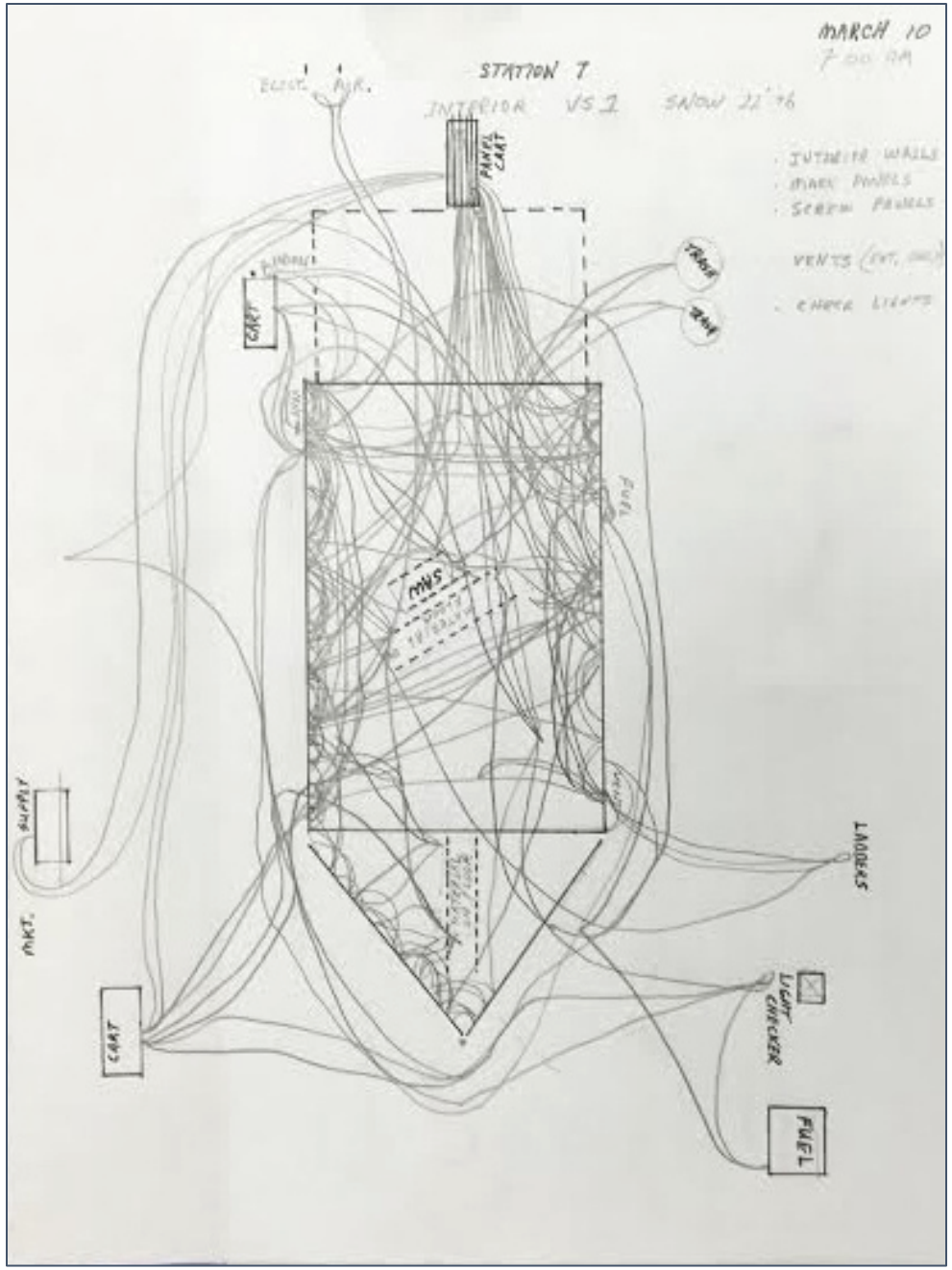
Step	Task	Cycle Time Sec	Takt Time Takt		Leadership Time Secs OBS1	Leadership Name Initials OBS2	JI	Notes
		84	84	5040				
1	Inspect tube for scratches	14	83.77	5026			101	Q
2	Drill 1/2" hole on back side. 2.5" down & 1" in (X 2)	25	83.35	5001				
3	Flip and apply Riv Nuts	29	82.87	4972			102	
4	Split Yellow and brown from the 4-way - Lay to side.	35	82.28	4937				
5	Run 4 way wires. Green and brown / 12" past bumper (X 2) Run white and brown from spool / 12" past bumper (X 2)	35	81.70	4902			103	
					H5			
		Secs	Takt	Last Value	Last row	Last step		
		138	81.70	4902	13	H5		



Step 2. Drill 1/2" hole on back side. 2.5" down & 1" in (X

Step 5. Run wires 12" past

Total time these tasks 2.3 Min



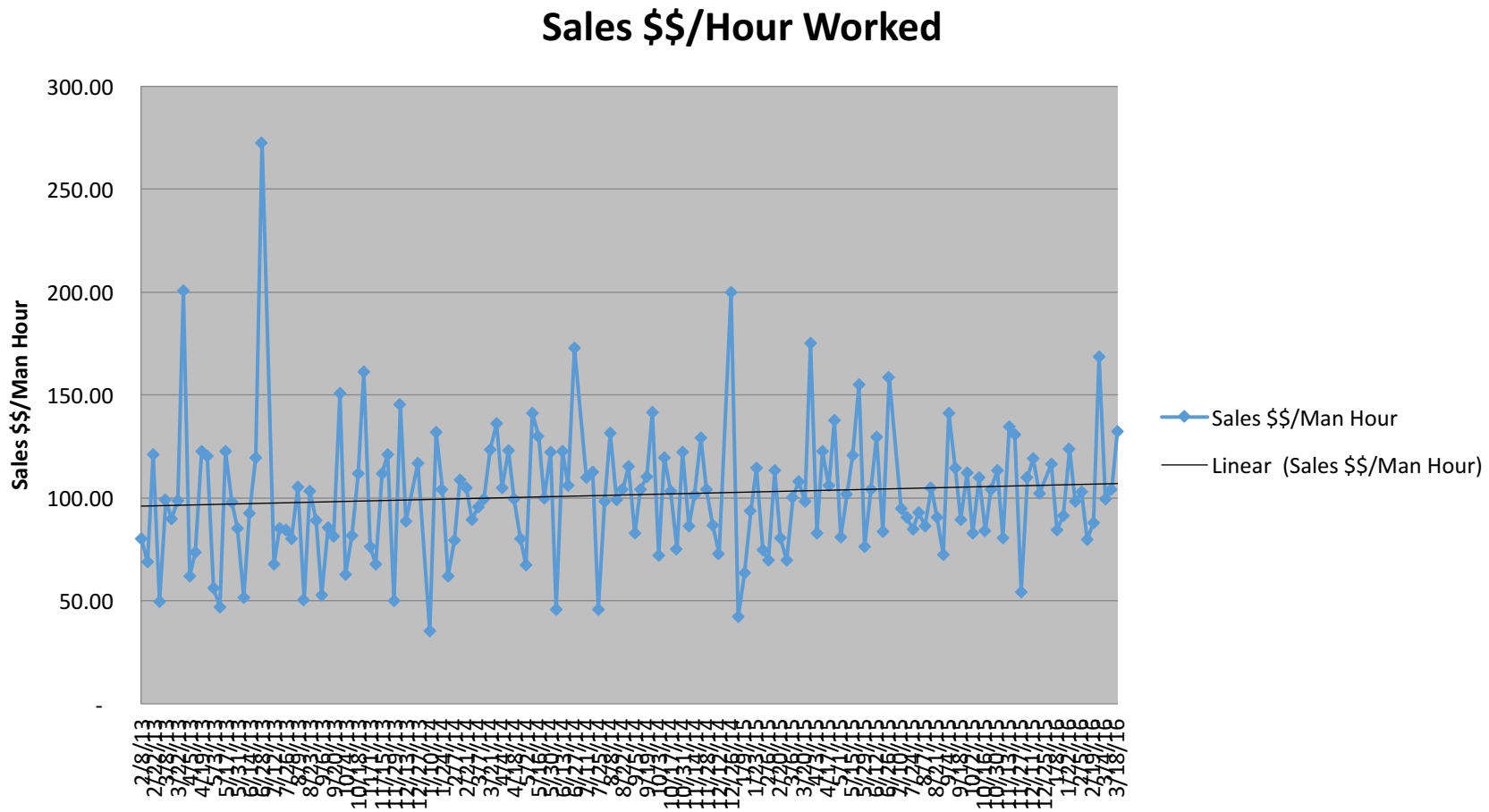
Station 7 Interior
March 10. 2016, 7:00 AM
22’ +6 Snow

Initial 40 minutes

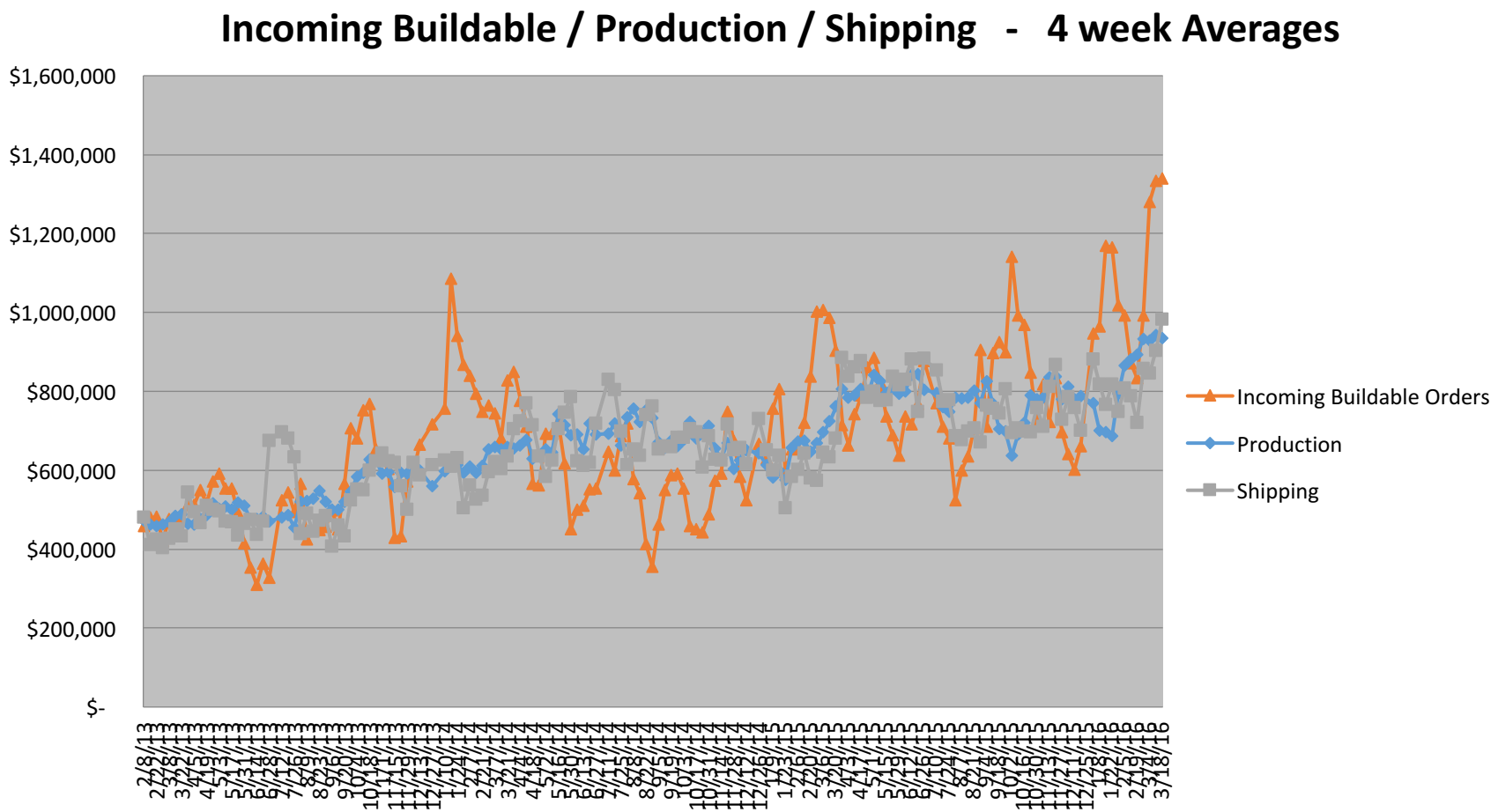
- Interior walls (luan)
- Marking panels
- Screw panels
- Vents (ext only)
- Check lights

M:\LeanManagementSystem\VS_ENCLOSED\Standard work\VS1_Station7Speghetti_160310

Dollars per Hour Worked



Sales history



Front line improvement

- Great way for leaders to get involved
- Great way for front line workers to see waste and increase improvement ideas
- Great way for other groups to engage in an area
- Improves Safety, quality, and cost-all at the same time

Thanks

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ATC Trailers- Youtube Channel