



Introduction to JI Job Instruction

TWI Institute
Scott Curtis, President/CEO

What is TWI ?

TWI is an essential element of Lean and continuous improvement programs around the world including the Toyota Production System. Its proven methods will:

Provides a foundation for developing organizational excellence and transforming business culture.

Complement Lean solutions by providing your frontline personnel with skills to establish a culture for change, improve methods and facilitate Standard Work

Drive stability, develop true Standard Work, create a sustainable improvement culture and teach "Respect for People"

Job Instruction

How to teach people to quickly learn to do a job

- correctly
- safely
- and conscientiously

Job Instruction

- **Quickly training employees to do a job correctly, safely, and conscientiously**
- Job Instruction is designed to develop basic stability of your processes (standard work). This program teaches the method to instruct an operator how to perform a job correctly, safely and conscientiously.
- As is frequently the case, most processes are performed by various workers using different methods.
- Job Instruction requires you identify the “***One Best Way***”, teach the process to this one way, and thereby creates a standard method.

Job Instruction

- **Quickly training employees to do a job correctly, safely, and conscientiously**
- The basis of stability is generated by doing the same thing the same way across operators and shifts.
- By utilizing Job Instruction you gain the benefits of consistent training and developing a stable process to apply continuous improvement upon. This lays a solid foundation for any continuous improvement program and is especially beneficial when you apply the third TWI program, Job Methods.
- Benefits experienced when practicing Job Instruction are reduced training time, less scrap and rework, fewer accidents, and increased job satisfaction.

Stabilize

Stabilize, Standardize and then Improve. One of the key foundation elements of Lean/TPS is achieving Standardized Work. How does Toyota achieve Standardized Work – TWI and specifically Job Instruction.

If you do not identify and train consistently all employees to the **"One Best Way"** you will experience variation. JI will reduce errors, re-work, downtime, customer complaints and improve employee morale.

The *Toyota Way Fieldbook*, Jeffrey K. Liker & David Meier, devotes an entire chapter, (Ch. 11) on how Toyota uses TWI.

Stabilize

The first step in creating lean processes is to achieve a basic level of process stability.

- The Toyota Way Fieldbook, Jeffrey Liker & David Meier, 2006, p56

Knowing that jobs are always done the same way helps to establish a predictable process before going too far down the path with the other elements of standardized work such as machine up time, availability of material, flow, and takt time.

- Art Smalley, Basic Stability is Basic to Lean Manufacturing Success

Ability to Recall Instructions

METHOD	3 HOURS	3 DAYS
Telling alone	70%	10%
Showing alone	72%	20%
Showing and telling	85%	65%
* Show, Tell & Do	95%	92%

Long term retention requires teaching the new skill to others

Source: Western Michigan University Study

* TWI Institute client data

A Lesson from Confucius

I hear and I forget.

I see and I remember.

I do and I understand.

Chinese philosopher & reformer (551 BC - 479 BC)

Five Basic Needs of a Supervisor

Knowledge

unique to the Company and/or the Industry

that supervisors must know to do their job:

1. Knowledge of the Work
2. Knowledge of Responsibilities

Knowledge training is the responsibility of each company and therefore not the focus of TWI.

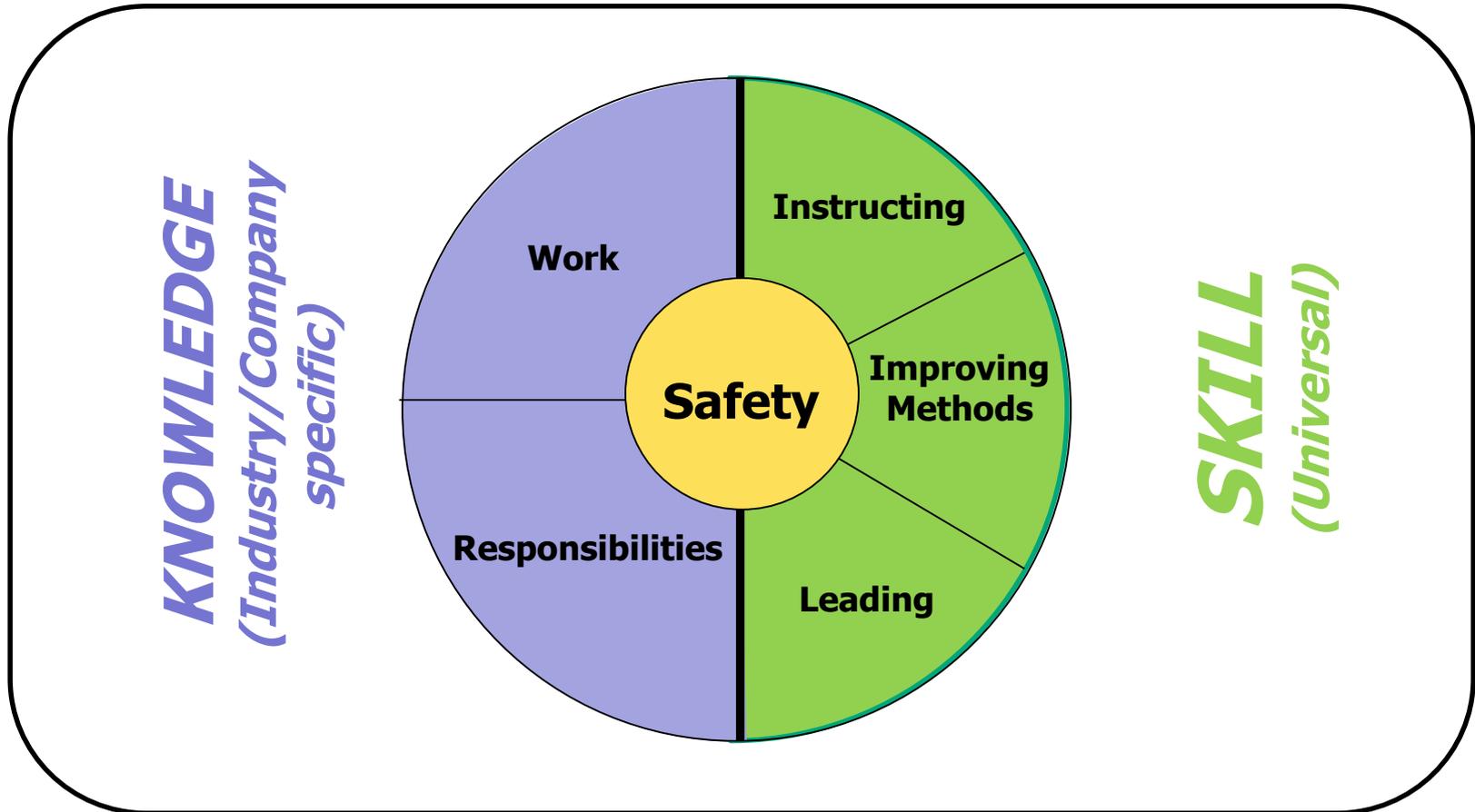
Five Basic Needs of a Supervisor

Skills

that are required for supervisors to perform within their role, *regardless of the industry*:

3. Skill in Leading
4. **Skill in Instruction**
5. Skill in Methods Improvement

Five Basic Needs of a Supervisor



JI 4-Step Method

Step 1 — PREPARE THE WORKER

Get the person interested in learning the job

Step 2 — PRESENT THE OPERATION

Don't give them more information than they can master at one time

Step 3 — TRY-OUT PERFORMANCE

Make sure the person understands

Step 4 — FOLLOW UP

Check on the person frequently/Encourage questions

**"If the worker hasn't learned
the instructor hasn't taught."**

No. _____

JOB INSTRUCTION BREAKDOWN SHEET

Operation: _____

Parts: _____

Tools & Materials: _____

IMPORTANT STEPS <i>What</i>	KEY POINTS <i>How</i>	REASONS <i>Why</i>
A logical segment of the operation when something happens to advance the work.	Anything that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. “knack”, “trick”, special timing, bit of special information	Reasons for key points
	<i>That 5 or 10% of a the hard or tricky parts of a job.</i> www.TWI-Institute.org	<i>People learn better when they know why they do things.</i>

Standardized Work is *What to Do*

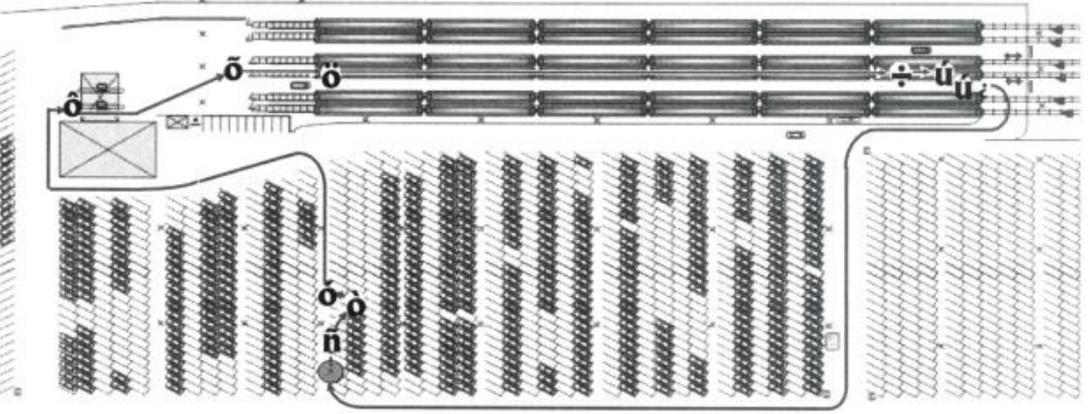
TAKT TIME	440	CYCLE TIME	430	SEC.
ELEMENTS OF PROCESS				
KEYPOINT	ELEMENT #	DESCRIPTION	WORK TIME	WALK TIME
+	1	Exit van at loadline, proceed to car	5	5
+	2	Verification Prior to Exiting Loadline	20	0
+	3	Follow Driving Pattern in Yard	75	0
i	4	Pull up to terminal, 'Load' car in NPPS	25	0
+	5	Drive up ramp and enter railcar	16	0
A	6	Drive through railcars at a maximum speed of 15 km/h Environmental - Significant Noise Impact	40	0
i	7	Park car to CP/AAR/TLS audit specifications	5	0
i	7a	Car in 'home position', transmission in neutral, parking brake on (AAR standard)	5	0
+	7b	Exit car with door under control	5	4
+	8	Chock down front tire of vehicle	45	2
+	8a	Chock down rear tire of vehicle	45	8
+	9	Spot following T.M. before exiting railcar	5	0
+	9a	If required, lower hingedecks (loading A-deck)	10	0
+	9b	If required, remove bridgeplates from C-deck (loading B-deck)	0	0
+	9c	If required, remove bridgeplates/close up railcar (loading B-deck)	0	0
	10	Exit Railcar	5	115
	10a	Get ride from shuttle	0	0
	.	During inactivity or downtime, 5S or do jobs as assigned	0	0
●		Repeat procedure until break, take-down or shift end	0	0
			411	19



TOYOTA MOTOR MANUFACTURING CANADA INC.

STANDARDIZED WORK CHART

OPERATION NAME: Rail Loading Process OPERATION NUMBER: _____



KEYPOINTS:

*Do not spin tires *Radios are not to be on while loading *Do not lean or place hands on vehicle *Place door edge protector at top of door frame when loading C deck (Corolla) *Drive at 35 km/h in yard *Keep 2 car lengths away from vehicle in front *No stopping on bridgeplates *Keep vehicle positioned in railcar 1" to 2" from tie-down rail. If unsure of positioning STOP vehicle and check. *Rail loading at high speeds may cause a high noise impact *Make sure chock strap is centered on tire and not touching the strut behind tire (check with hand) *Ensure straps are not twisted *Ratchet chocks firmly but do not bulge tire *Visually check to see if pin is locked in *Use the 3 point contact rule when climbing down the ladder *Carry ratchet in hand away from vehicle, put in pocket when climbing down ladders *Make sure hinge decks are locked in when lowered

When Loading 2 Destinations with 2 Crews:

*Be aware of other crew, know what they are loading and drive with caution when approaching loadline or terminal scanners
*Reverse loading areas with edges to ensure safe approach to crew

NOTE PLACE: i ● ◊ + A ENVIRONMENTAL "SIGNIFICANT NOISE IMPACT"

PAGE 1 OF 1

JI Breakdown – (*How to Do It*)

No. _____



JOB INSTRUCTION BREAKDOWN SHEET

Operation: Glost Kiln Operator Cycle

Parts: None

Tools & Materials: Kiln Gloves

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. "knack", "trick", special timing, bit of special information	Reasons for the key points
1. Discharge GK #3	1. Use kiln gloves 2. Pull at correct time	1. Burn hazard 2. Kiln control
2. Charge GK #3	1. Fix downed ware 2. Do not slam transfer	1. Defect prevention 2. Defect prevention
3. Record car data		
4. Check kiln temperatures	1. Call Ceramic Tech if 50°F delta in zones	1. Proper kiln control
5. Charge GK #3	1. Fix downed ware 2. Do not slam transfer	1. Defect prevention 2. Defect prevention
6. Discharge GK #3	1. Use kiln gloves 2. Pull at correct time	1. Burn hazard 2. Kiln control
7. Record car data		
8. Check kiln temperatures	1. Call Ceramic Tech if 50°F delta in zones	1. Proper kiln control

- Train all operators to the standard
- Monitor to maintain standards to eliminate variation in the process
- Focus operators on takt time and quality at the source vs. just keeping up
- Teach people how to solve problems to continuously improve

Typical First Pass at Creating a JIB

JOB BREAKDOWN SHEET		
DATE: January 21, 2008	TEAM LEADER: Donna S., Gillain A., Joan C.	SPONSOR: Donna S., MD
AREA: All areas providing direct pt care or in contact with pt care supplies, equipment or food	JOB: Hand Hygiene in compliance with CDC & WHO hand hygiene guidelines	WRITTEN BY: Joan C.
MAJOR STEPS	KEY POINTS	REASONS FOR KEY POINTS
Step #1: Identify the need for clean hands	Remove artificial fingernails or extenders when in direct contact with pts or their environment	Artificial nails house germs that can be passed on when you touch pts
	Clean hands whether or not you use gloves (i.e. before putting on gloves & after removing gloves)	Gloves are not a substitute for cleaning hands because gloves don't completely prevent germ transmission
	Before direct contact with pt, pt's environment or equipment	Protect the pt against harmful germs carried on your hands
	After direct contact with pt, pt's environment or equipment	Protect yourself & the health-care environment from harmful pt germs
Step #2: Inspect your hands to determine best cleaning method	If not visibly soiled, use alcohol-based gel	Cleaning with gel is faster, more effective, and better tolerated by your hands
	Visibly soiled hands or hand with fecal contamination require washing with soap & water	Dirt, blood, feces or other body fluids are best removed with soap & water (C. diff spores are not killed with alcohol-based gel)
Step #3: Use enough product to cover all hand surfaces & fingers	GEL: Cover all surfaces with a thumb nail-sized amount	Friction & skin contact are required to remove germs
	WASH: Wet hands with water, wash with enough soap to cover all hand/finger surfaces	
Step #4: Spend enough time cleaning your hands	GEL: Vigorously rub until product dries on your hands	Antiseptic action is not complete until fully dried (approx 15 sec.)
	WASH: A minimum of 15 sec. (the length of singing "Happy Birthday to You")	As least 15 sec. is needed to ensure complete coverage of hand surfaces
	Use paper towel to turn off water faucet	Prevent transfer of germs from faucet onto clean hands
Step #5: Let your hands completely dry	Moisturize hands with lotion available through Central Supply	To minimize contact dermatitis without interfering with antimicrobial action
	Put on gloves after hands are dry	Skin irritation may occur if moist hands come in contact with glove material
Step #6: Perform task with clean hands	Task is done immediately after cleaning hands	You may be distracted & touch unclean surface with clean hands

Typical First Pass at Creating a JIB

JOB BREAKDOWN SHEET		
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MAJOR STEPS	KEY POINTS	REASONS FOR KEY POINTS
Step #1: Identify the need for clean hands	Remove artificial fingernails or extenders when in direct contact with pts or their environment	Artificial nails house germs that can be passed on when you touch pts
	Clean hands whether or not you use gloves (i.e. before putting on gloves & after removing gloves)	Gloves are not a substitute for hand hygiene because gloves don't completely protect your hands
	Before direct contact with pt, pt's environment or equipment	Protect yourself and your hands
	After direct contact with pt, pt's environment or equipment	Protect yourself and your hands from harmful pt environment
Step #2: Inspect your hands to determine best cleaning method	If not visibly soiled, use alcohol-based hand sanitizer	Alcohol-based hand sanitizer is faster, more effective, and better tolerated by patients
	Use soap and water if hands are visibly soiled	Dirt, blood, feces or other body fluids are best removed with soap & water (C. diff spores are not killed with alcohol-based gel)
Step #3: Use enough soap to cover all hands & fingers	Use a dime-sized amount of soap	Friction & skin contact are required to remove germs
	Wash hands with water, wash with enough soap to cover all hand/finger surfaces	
Step #4: Spend enough time cleaning your hands	GEL: Vigorously rub until product dries on your hands	Antiseptic action is not complete until fully dried (approx 15 sec.)
	WASH: A minimum of 15 sec. (the length of singing "Happy Birthday to You")	As least 15 sec. is needed to ensure complete coverage of hand surfaces
	Use paper towel to turn off water faucet	Prevent transfer of germs from faucet onto clean hands
Step #5: Let your hands completely dry	Moisturize hands with lotion available through Central Supply	To minimize contact dermatitis without interfering with antimicrobial action
	Put on gloves after hands are dry	Skin irritation may occur if moist hands come in contact with glove material
Step #6: Perform task with clean hands	Task is done immediately after cleaning hands	You may be distracted & touch unclean surface with clean hands

Too many words, impossible to train using 4-Step method!

Job Instruction Breakdown after JI Follow-up Coaching

Operation: Hand Hygiene-Washing

Parts: Soap, Running Water, Disposal Towel

Tools & Materials: None

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. “knack”, “trick”, special timing, bit of special information	Reasons for the key points
1. Wet hands	Without soap	If soap is used, it rinses away
2. Apply soap	Cover all surfaces	Kill all germs
3. Rub hands	1. Palm to palm 2. Palm to backs	1. Clean entire surface 2. Clean entire surface
4. Run fingers	1. Thumbs 2. Interlocking 3. Backs of fingers to palm 4. Tips of fingers to palm	1. Most active part of hands 2. Sides of fingers cleaned at one time 3. Cuticles and knuckles 4. Under finger nails
5. Rinse	Leave water on	Prevent recontamination of hands
6. Dry	Use towel to turn off water	Prevent recontamination of hands

Document #:	PAP-180-1	Version:	2
Product Group:	Monofilament	Issue Date:	1/24/08
Plant:	Homer	Next Review:	7/24/08
Department:	Extrusion	Section 1 Page:	1 of 1

Sample / Tie Off Single End Spools

Parts:	Spool of Finished Goods	Author:	Jennifer Pickert
Tools & Materials:	Work Order		
Reference Materials:	"Sample collection frequency chart"		
Vocabulary:	N/A		

JOB INSTRUCTION BREAKDOWN			
#	Important Step	Key Points	Reasons
1	Reference Work Order	<ol style="list-style-type: none"> 1. Determine product group 2. Determine which direction spool dereels 	<ol style="list-style-type: none"> 1. Sample Sequence 2. Customer request
2	Determine if sample is needed	<ol style="list-style-type: none"> 1. Operator/QA 2. Cell board 	<ol style="list-style-type: none"> 1. Status of Testing 2. Determine when last sample was taken
3	Determine how sample is processed	Sample sequence per PAC-019 (Sample Collection Frequency Chart)	<ol style="list-style-type: none"> 1. Changes per product group
4	Prep spool for Tie-Off	<ol style="list-style-type: none"> 1. Dereels Correct direction 2. No miswraps 3. Inner thread hole at 6 O'clock 4. Do not sample red tagged spools 	Customer request Prevent breaks Detect empty Spool Scrap material
5	Dereel line	<ol style="list-style-type: none"> 1. 3-5 ends if possible 2. 4-5 ft for Tie Off /Lube or 8-12ft for QA 3. Feel for rough lines 4. Do not step on or stretch sample 	<ol style="list-style-type: none"> 1. Easier/ Faster 2. Testing Requirements 3. Detect quality problems 4. Could damage sample
6	Tie- Off	Loop with at least 3 twists Pull snug against spool Knot at 6 O'clock	<ol style="list-style-type: none"> 1. Good knot 2. Won't come loose 3. Customer request

Document #:	PAP-180-2	Version:	3
Product Group:	Monofilament	Issue Date:	2/21/08
Plant:	Homer	Next Review:	8/21/08
Department:	Extrusion	Section 1 Page:	1 of 1

Spool Inspection

Parts:	Labeling Spools	Author:	Jennifer Pickert
Tools & Materials:	Pin Gauge, Bar, Work Order		
Reference Materials:	PAP-180		
Vocabulary:	N/A		

JOB INSTRUCTION BREAKDOWN			
#	Important Step	Key Points	Reasons
Before we begin 0	Select correct tools	<ol style="list-style-type: none"> 1. Reference lot label 2. Pin size on PAC-180 3. Bar length fits spool type 	<ol style="list-style-type: none"> 1. Diameter size 2. Pin size varies by product 3. Better inspection
1	Inspect flanges 	<ol style="list-style-type: none"> 1. Smooth, clean, undamaged 2. Check for colored tags 3. Spool on side to check bottom flange. 4. If failed, stop-leave on side (applies to all insp. steps) 	<ol style="list-style-type: none"> 1. Prevent quality complaints 2. Must not pack red or green 3. See better - prevent injury 4. Easy to see rejects
2	Inspect filament 	<ol style="list-style-type: none"> 1. Uniform appearance 2. Firm, scrap free, no extra tails 	<ol style="list-style-type: none"> 1. Appearance matters 2. Prevent snags and breaks
3	Verify level wind	<ol style="list-style-type: none"> 1. One location 2. Reject if pin fits under bar <u>anywhere</u> across 	<ol style="list-style-type: none"> 1. Quicker 2. Prevent quality complaints
4	Verify # of ends	<ol style="list-style-type: none"> 1. Separate/count ends 	<ol style="list-style-type: none"> 1. Insure proper #
5	Repeat inspection on remaining spools		
6	Stamp all good spools		Accountability

Instruction Breakdown from Quality

Operation: Filling In Quality Defect Form

Parts: Quality Defect Form

Tools & Materials: Measurement Tools

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. "knack", "trick", special timing, bit of special information	Reasons for the key points
1. Complete information section	1. Print legibly 2. Use date of inspection 3. Fill in all blanks	1. Cannot read 2. Not necessarily today's date 3. No missing information
2. Fill in part information	1. Use 16 digit part code 2. Confirm with BOM if in doubt	1. There are many designations for the same part 2. Many parts are similar
3. Explain in detail quality problem	1. Use descriptive words in complete phrases 2. Attach photos if needed 3. Describe extent of problem—one part or many	1. To fully understand defect 2. Some problems are difficult to describe in words 3. If problem is going to be recurring or not
4. Describe action taken	1. Give time limit on temporary countermeasures 2. Record any down time	1. So they can be discontinued when not needed 2. Calculate full cost of defect
5. Obtain all signatures and submit to Quality Office	1. Within 24 hours 2. Blue tray next to copy machine	1. Quick disposition to vendors 2. So it doesn't get lost

Instruction Breakdown from Warehouse

JOB INSTRUCTION BREAKDOWN SHEET

Operation: Put-Away with Existing Overflow

Parts: _____

Tools & Materials: _____

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might – 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. “knack”, “trick”, special timing, bit of special information	Reasons for key points
1. Take part to overflow area immediately	1. When there is overflow tag 2. Make note how many parts to fill 3. Confirm store no. with paperwork	1. Shows overflow stock 2. To keep note of how many parts going into overflow 3. Ensure correct storage place
2. Find overflow stock	1. Light parts-north; heavy parts-south 2. If not found, search entire area 3. Use proper safety rules (lifting, ladders, etc.)	1. Find bin more quickly 2. Odd shapes are placed randomly 3. To protect your back from strain or from falling
3. Return and fill bin if needed	1. Take appropriate amount 2. Fill to capacity 3. Don’t overstuff 4. Older parts front or right 5. Remove overflow tag if all overstock is used	1. So you don’t make two trips 2. Ensures proper stock 3. Damage the parts 4. FIFO rules 5. Shows correct amounts
4. Replace extra parts in overflow area	1. Keep old & new parts separated 2. Update qty. for old placard 3. Make placard for new parts 4. Put new parts under old 5. If needed, add to manifest	1. Maintain FIFO rules 2. To know the correct amount 3. Shows new parts in stock 4. Maintain FIFO rules 5. Only when not shown on manifest

Instruction Breakdown from Engineering

JOB BREAKDOWN SHEET

Operation: Grip Length Calculation - Blind Insert

Parts: _____

Tools & Materials: _____

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. "knack", "trick", special timing, bit of special information	Reasons for the key points
1. Open Fastener Calculation Spreadsheet	1. Use only the official spreadsheet found here	1. Provides a standard format and method for calculating screw length
2. Insert Picture of Stack-Up	1. Copy and paste a reference image	1. Allows others to easily identify the joint being calculated
3. Insert current fastener length	1. Use current fastener callout	1. Provides a means for comparison
4. Enter Insert Length "L" into Calculator	1. Use only released specifications to determine the correct dimension	1. The calculator will determine the maximum fastener engagement so the screw doesn't bottom out when installed
5. Determine thickness of "Stack-Up" components	1. Use only released specifications to determine the correct dimension 2. Enter each component thickness separately	1. The "Stack-Up" is a key component of the final screw length 2. To get correct calculation