



**Standard
Operations**

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What's Your Role?



Creating, maintaining, training,
observing and improving
standard operations on a
continuous basis

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Agenda

- 
- Fundamental Elements of Standard Operating Procedures
 - Standard Operating Content
 - Shopfloor Activities

Principal Elements of Standard Operations

• Takt time / cycle

• In stock

• Work sequence

• Standard WIP

Takt Time Example

Net Operating Shift: 480 minutes 480

Time Per Break: Breaks: 2 @ 10 minutes -20

Cleanup: 1 @ 4 minutes -4

Net operating time per shift

Customer Monthly Requirements (units) 9,600

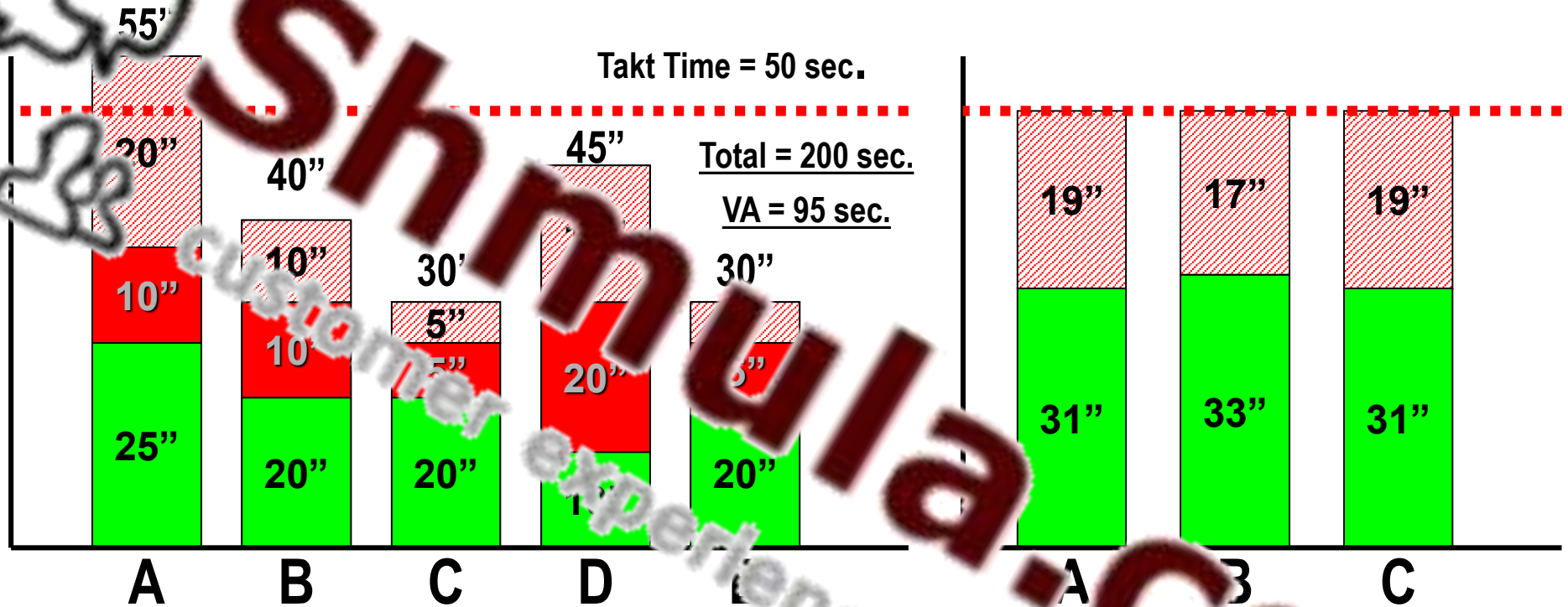
Requirements: # Working days / month \div 20

Units / day

Takt Time = $\frac{\text{Net Operating Time / Period}}{\text{Customer Requirements / Period}}$

For 1 shift / day: Takt Time =

Takt Time/Cycle Time



$$\text{OCT} / \text{TT} = 200 / 50 = 4.0$$

$$\text{VA} / \text{TT} = 95 / 50 = 1.9$$

$$(\text{OCT} - \text{NVA}) / \text{TT} = 150 / 50 = 3.0$$

Value Added

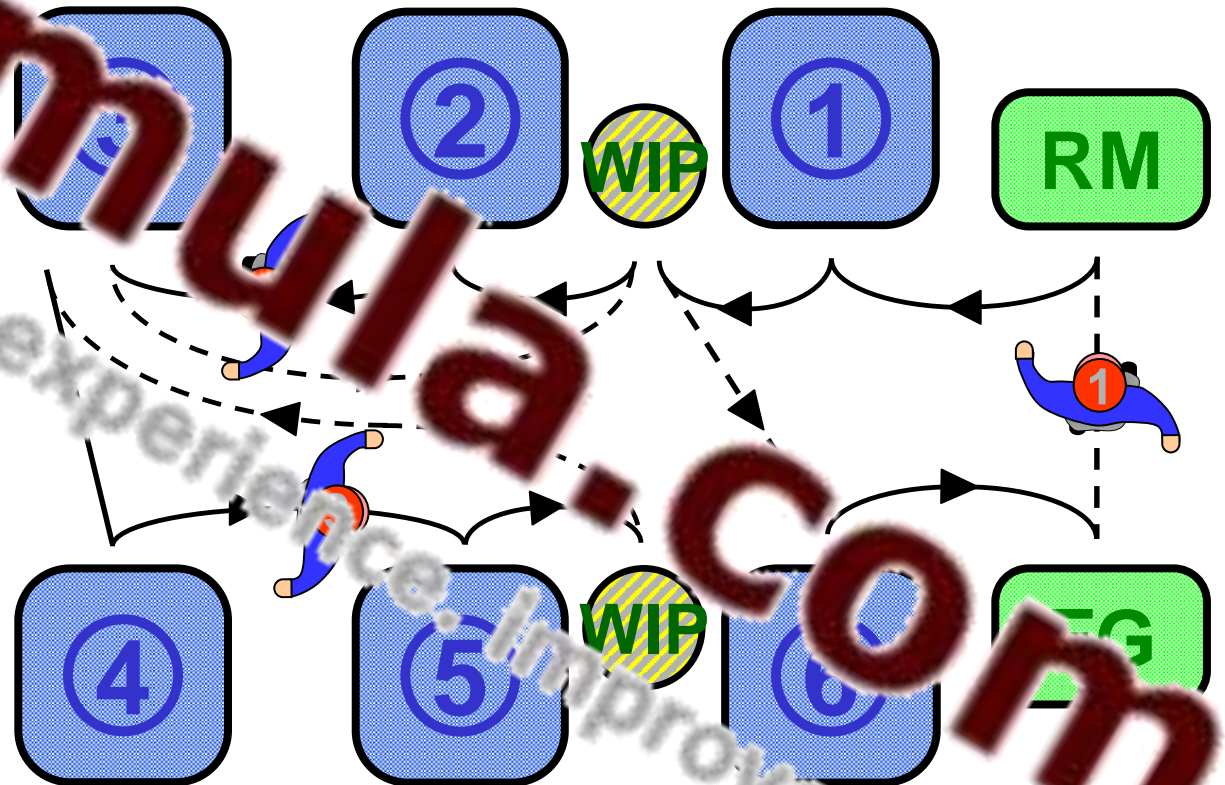
NVA

Unavoidable NVA

Elements of Standard Operations

Work Sequence

- Prescribed sequence of steps
- Assigned to a single operator
- Balanced to Takt Time



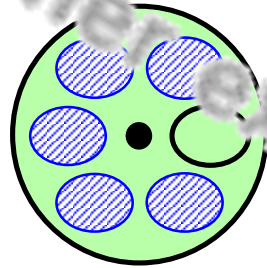
Standard Work In Process

Example

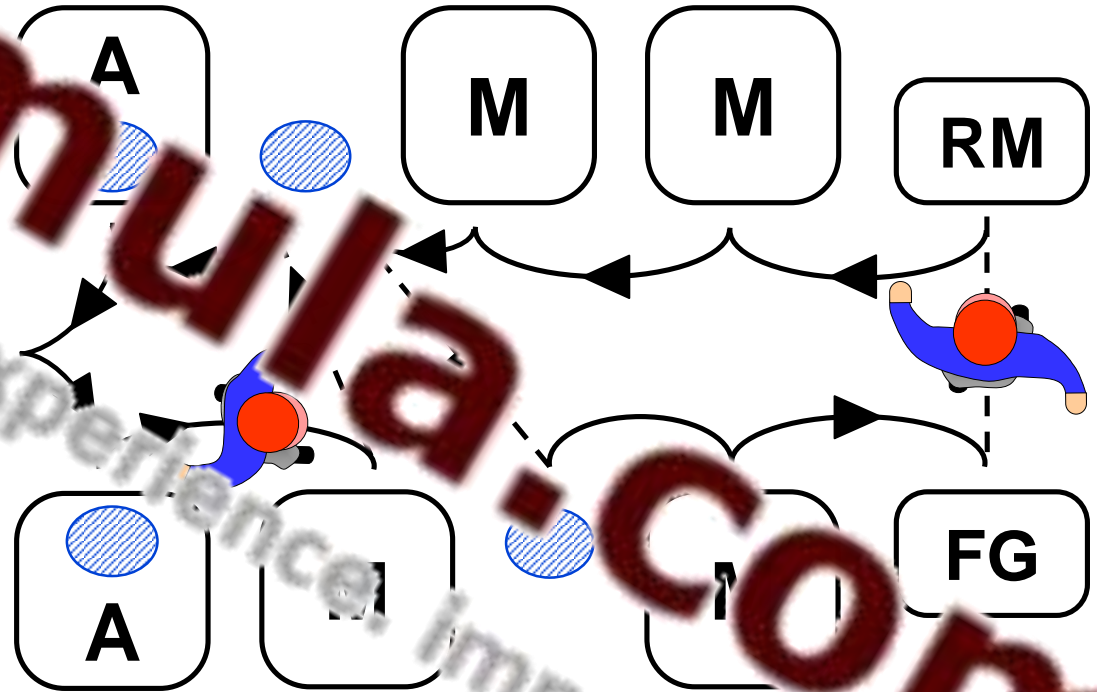
Takt time = 25 sec

Turnaround
time = 20
sec

WIP =



Special
Process
Turntable



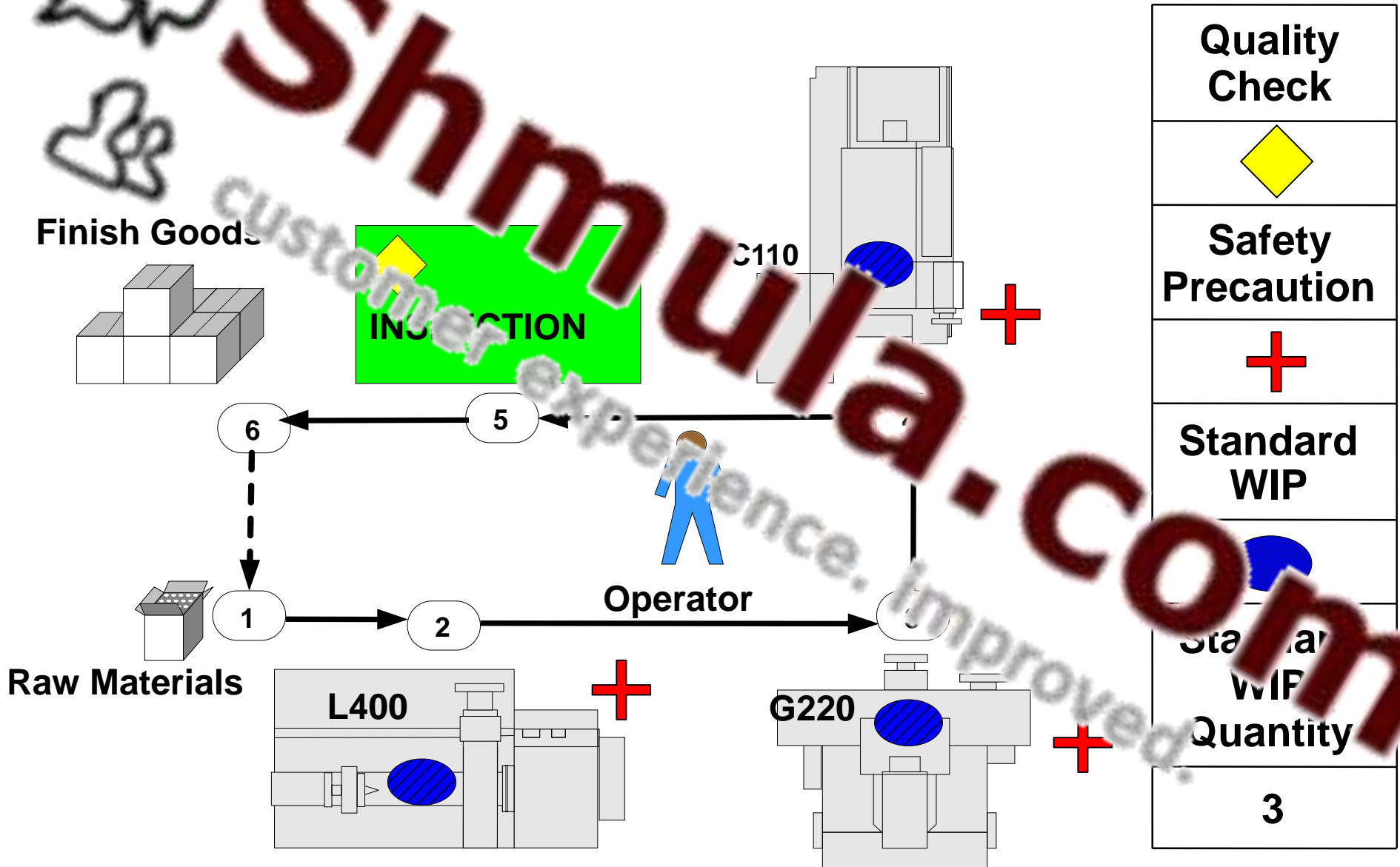
Standard WIP = units

= WIP
A = Auto
M = Manual

e

SOS Completion: Detailing the Layout

“Standard Work Layout”



Standard Operations Sheet

Cell / Line name: Cell # 001		Part Name / Number: Shaft / 1-12930		Work sequence <u>1</u> of <u>1</u> From (operation): Lathe turning To (operation): Inspection		Process sheets:		Date Created: 8/12/02 Date Revised:							
Takt time: 40sec. # of units required: 690		Standard Work Layout				Part Drawing									
Tools required:															
Safety equipment:															
Safety Glasses		3													
Safety Shoes															
Step #	Description of work content	Man time	Auto time	Walk time	Work Content [sec/div]				Critical Points & Quality Check Points						
1	Pick up RM	2		2	[Timeline bar]				[Timeline bar]						
2	Lathe turning	6	26	2	[Timeline bar]				[Timeline bar]						
3	Grinding	6	30	2	[Timeline bar]				[Timeline bar]						
4	Slot keyway	5	18	2	[Timeline bar]				[Timeline bar]						
5	Inspect	7		2	[Timeline bar]				[Timeline bar]						
6	Put down FG	2		2	[Timeline bar]				[Timeline bar]						
Totals		28	+	12	=	40	40	-	40	=	0				
		Total time		Takt time		Total time		Wait time							

Example of a Standard Operation Report

Month: May

Work Area: BV7

Day	Time	Observation Observed	Employee Observed	Key Point	Comments
Monday	8:00 am 10/22/00	Striker install	John Doe	Bolts secured to spec	OK
Tuesday	9:00 am 10/23/00	Striker adjust to door	Sam Dee	Door aligns with striker	Alignment not done correctly
Wednesday					
Thursday					
Friday					

Comments: Retrained Sam Dee on striker adjust

Standard Operation Report Checklist

1. Identify what to be observed and explain to the operator the purpose of the observation
2. Observe the operator and verify that all elements are performed per customer SOP – Train if necessary
3. Identify any workstation safety issues. Train and audit.
4. Verify the operator's understanding of key points. Train if necessary.
5. Identify any wasted motion, excess waiting, or other wastes – Note in "Comments"

Standard Operation Report Checklist (cont.)



o. Verify if the operator understands all visual aids and identify any poor operator work habits. Train if necessary.

- Determine if more visual aids are needed. Note in “Comments”
- Document all findings and specify any corrective measures
- Communicate “best practices” and retraining issues to all work cell team members

Standard Operations Exercise

- Calculate and verify the takt time for delta site
- Each participant (or sub-team) will complete a Standard Operation Sheet for the each operation observed (see addendum for form)
- Complete the work station layout and Standard WIP and document on the SWS
- Review results with group

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