Lean Practitioner in Healthcare

10 Steps to become a Lean Enterprise Series

Course Workbook Part 6 - Step 7

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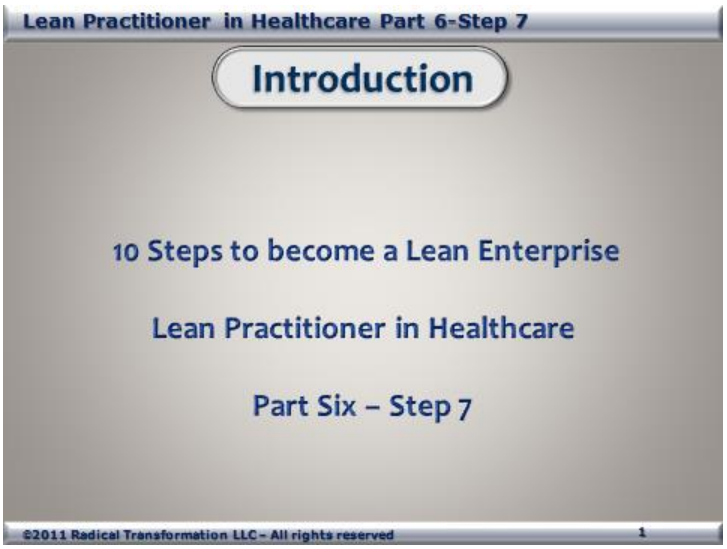


Introduction.

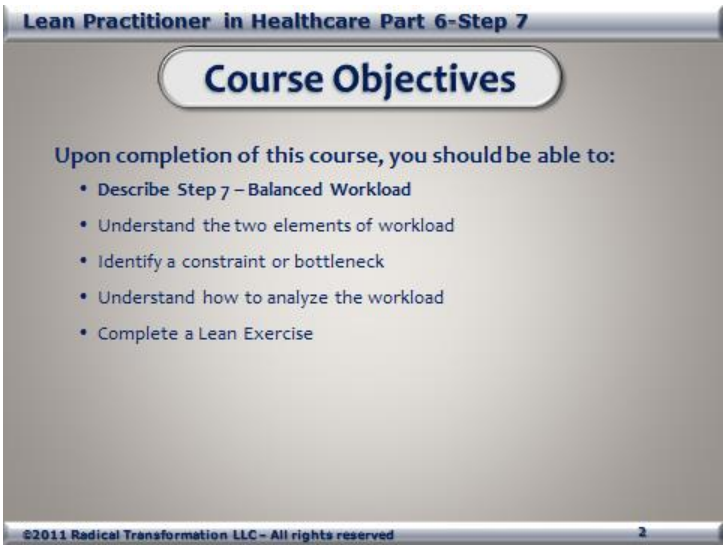
Welcome back to our online training course.

This training module is the continuation of our "10 steps to become a Lean Enterprise" Lean Practitioner online course series.

We continue with this training module "Lean Practitioner – Part 6 – Step 7."

It has been designed to demonstrate the most effective implementation sequence to help an organization become a Lean Enterprise.

Let's continue the Lean journey!



Course Objectives.

Here are the course objectives for the Lean Practitioner – Part 6 – Step 7.

We continue sharing the necessary information so anyone can gain a better understanding of what it takes to become a Lean Enterprise.

Upon completion of this course, you should be able to:

- Describe Step 7 – Balanced Workload
- Understand the two elements of workload
- Identify a constraint or bottleneck
- Understand how to analyze the work content
- Complete a Lean Exercise

As you work through the online training modules, you will see a screen with an outline of the course objectives.

These objectives are the steps a learner needs to fully understand and be able to apply to achieve the overall training goal for each course.

10 Steps to become a Lean Enterprise.

In the previous Lean Practitioner modules, you completed Steps 1 through 6.

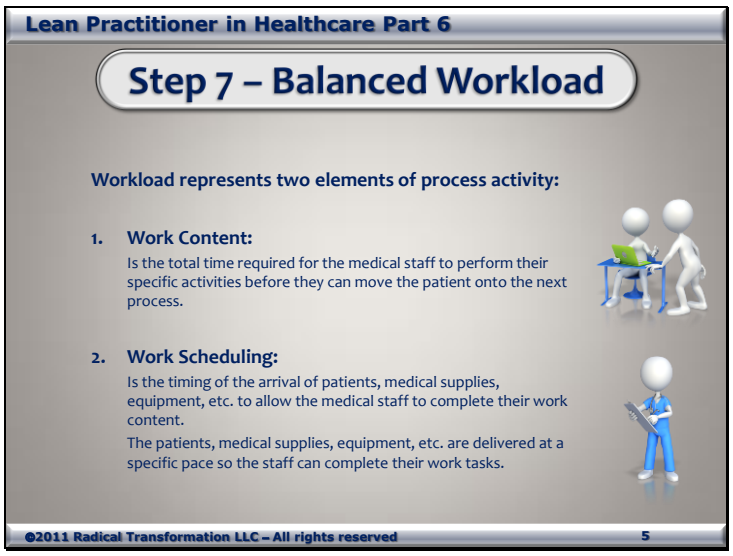
Step 1 Strategy Deployment.
Step 2 Value Stream Mapping.
Step 3 Workplace Organization.
Step 4 Improve Process Flow.
Step 5 Reduce Changeover Times.
Step 6 Implement a Pull System

In Lean Practitioner – Part 6 we are going to discuss Steps 7 of the10 steps to become a Lean Enterprise:

Step 7 Balance the Workload.

Remember: Each step is an important part of the Lean Enterprise puzzle.

If any one of the 10 steps is not applied as described, an organization will find it very difficult to become a fully functional Lean Enterprise.



Step 7 – Balanced Workload.

As an organization works through each of the 10 steps, they are identifying and eliminating waste to improve process flow, reduce inventory levels, and increase value for the patient.

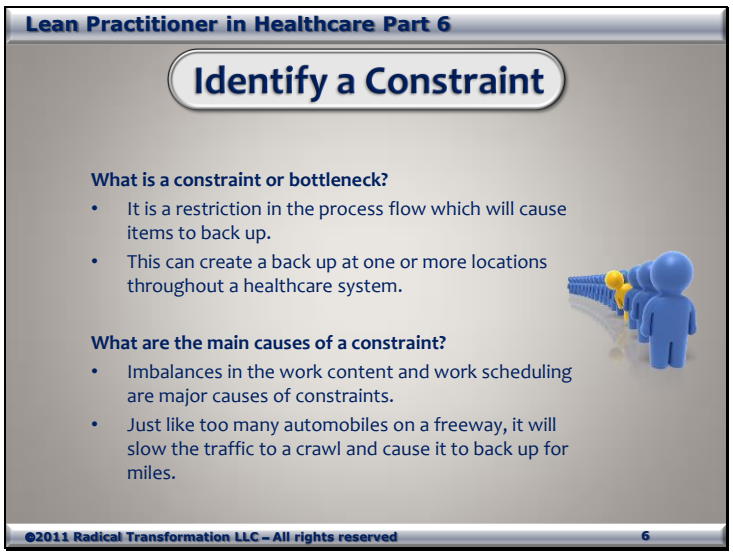
At this point, in their lean implementation they need to develop a better understanding of their process workload. This is critical because of the direct impact that the workload has on process flow and lead times. First, we need to define workload. What is it?

Workload has two key elements, which are:

1. Work Content
2. Work Scheduling

Work Content: Is the total time required for medical staff to perform a series of specific activities to deliver care to one patient before they can move them onto the next process. It is represented as the cycle time per patient i.e. the number of seconds, minutes, etc. to complete the necessary tasks for each patient.

Work Scheduling: Is timing of the arrival of patients, medical supplies, equipment, paperwork, etc. to allow the medical staff to complete their work content. These are delivered at a specific pace so an employee can complete their work tasks in a timely manner to meet a patient's needs.



Identify a Constraint.

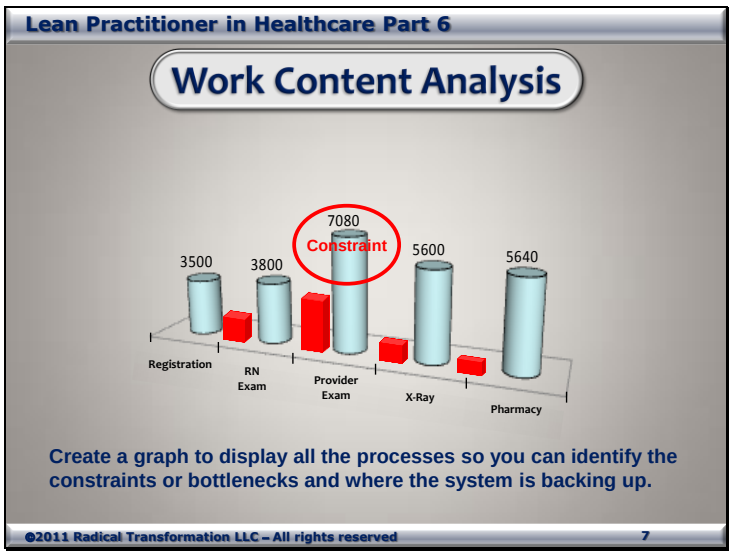
A healthcare organization must be able to control their work load to improve process flow. If they cannot achieve this they will always have problems with bottlenecks or constraints in their processes. What is a bottleneck or constraint?

A bottleneck or constraint is a restriction in the process flow which will cause the patients, medical supplies, documents, equipment, etc. to back up. This creates huge piles of work in process (WIP) at one or more locations throughout the healthcare system. What are the main causes of constraints?

Imbalances in the work content and scheduling are major causes of bottlenecks. It is the same as too many automobiles on a freeway, it will slow traffic to a crawl and cause it to back up for miles. There are several ways that constraints can manifest:

- Taking too much time to complete a task will slow down the healthcare system.
- Introducing many patients will eventually overwhelm the care processes..
- Not enough resources such as supplies, equipment, or trained medical staff working in the healthcare system will eventually cause the system to become overwhelmed and can lead to critical quality issues in the level of care.
- Inconsistent flow of patients passing through the healthcare system.

It is important to find ways to balance the work content and work scheduling to increase confidence in an organizations capability to consistently meet patient demand.



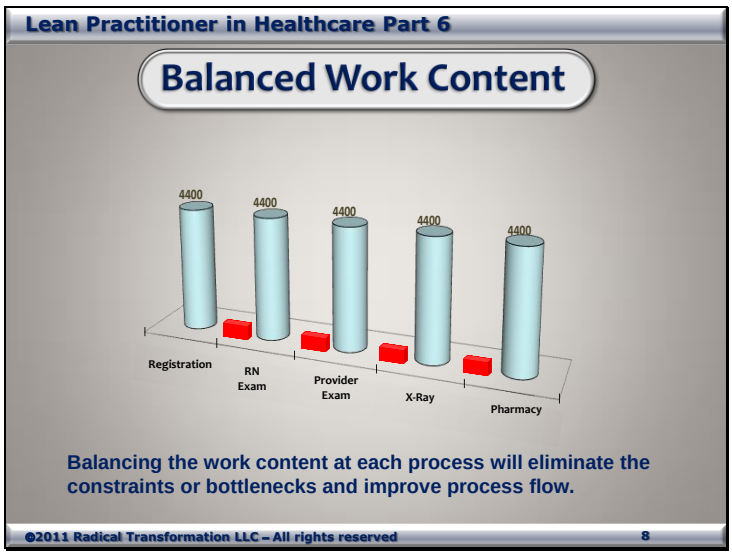
Work Content Analysis.

The first step, for any healthcare organization that is working towards achieving a balanced workload is to determine the amount of time required to perform the work tasks at each process in the healthcare system.

An easy method for doing this is to conduct a time study for each process. This will give information about how long it takes for a patient to go through a process such as the RN or Provider exam, etc. It is very important not to do just one time study. Time studies need to be completed with several patients to get a representative sample of the work activities. When the time study data has been collected it can be entered into a spreadsheet to create a graph. You can see an example of a typical work content graph on the screen.

In the graph format, it's very easy to analyze the work content to see where the constraints or bottlenecks are located. Processes with the largest work content take longer to complete their tasks. Therefore, they restrict the workflow and this creates a bottleneck, which causes patients, supplies, equipment, documents, etc. to build up in the work area or department. You can observe this by looking at the red inventory indicators in the graph.

The next step is to re-organize and re-allocate the work content between each of the five processes to try to balance the workload. We will demonstrate the result of doing this on the next screen.



Balanced Work Content.

On this screen, you can clearly see how the work content and inventory levels for each process have been perfectly balanced. This is very easy to demonstrate as a concept on a screen, but more difficult to do in reality. It is not always possible to achieve a perfect balance of the workload across several activities. Often, there are certain types of processes that will remain out of balance. Why is this?

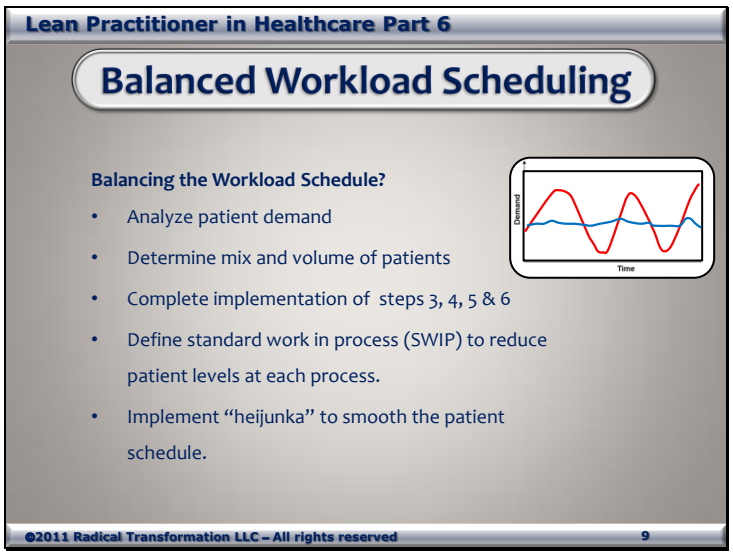
There are several reasons why this could happen. Here are a few examples:

1. A specialist skill set required at a particular process would limit the ability to share the workload between other staff members, who are not qualified or skilled.

2. Where certain processes are not geographically located in the same facility and the patient must well enough to physically move them to the next location.

3. A specific department in the system is a shared resource, where multiple categories of patients converge at this single process e.g. MRI, CT Scan, etc.

It's important to try to balance all the processes to be as near to the same cycle time as possible. If you cannot achieve this, the throughput of patients will be limited to a same rate of the constraint process.



Balanced Workload Scheduling.

Once the work content has been balanced at each process, it is important to look at the patient scheduling system. The first step is to collect data about patient demand. The data is analyzed to identify patient types and quantities. This will help to define the mix and volume of patients moving through the healthcare system.

At this point in the lean implementation a healthcare organization must complete the following steps of the 10 Steps to become a Lean Enterprise:

Step 3 – Workplace Organization

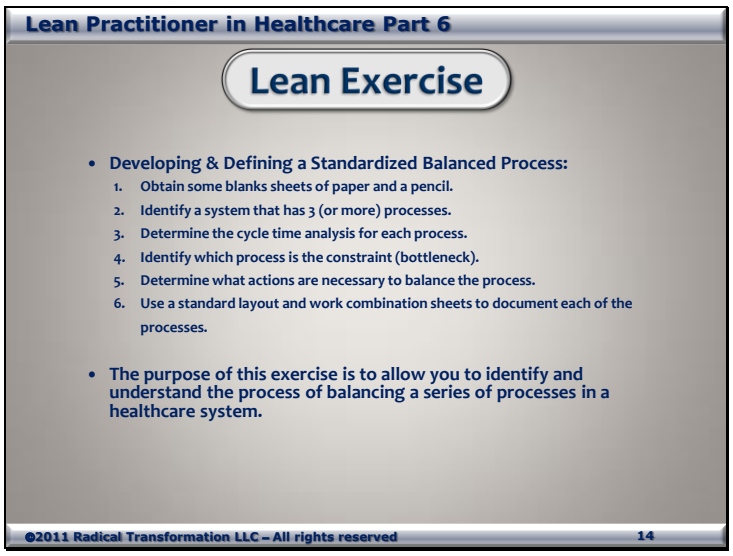
Step 4 – Improve Process Flow

Step 5 – Reduce Changeover Times

Step 6 – Implement a Pull System

These steps will help to eliminate waste and improve productivity. A pull system will control the amount of patients, supplies, documents, equipment, etc. at each workstation and clearly define the standard work in process (SWIP).

Fluctuations in patient demand create spikes that make it difficult to maintain a consistent pulse in the schedule. This is demonstrated with the red line in the graphic on the screen. To help balance the schedule and even out these fluctuations, we would need to implement "heijunka" or "process smoothing (blue line in graphic)." We have a complete training module about "heijunka" in our Level 3 – Lean Expert course.



Lean Exercise.

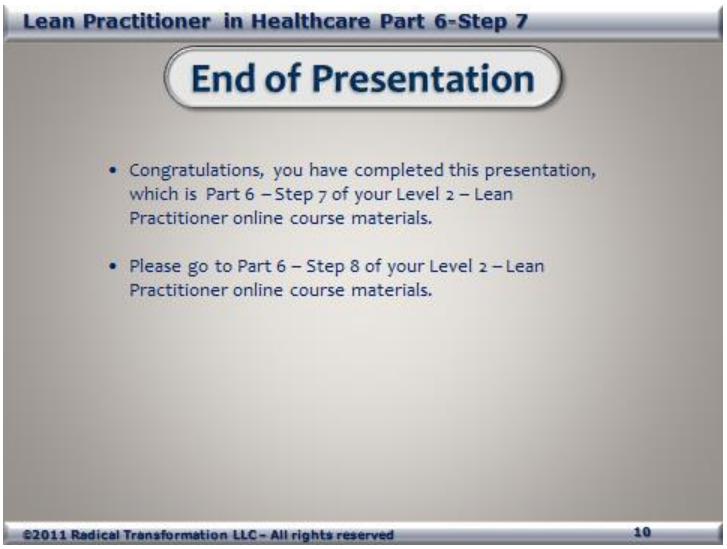
I would like you to get involved in a practical exercise. Here are the instructions:

To participate in the Developing and Defining a Standardized Balanced Process exercise you will need to do the following:

1. Obtain some blank sheets of paper and a pencil.
2. Identify a healthcare system that has 3 (or more) processes.
3. Complete a cycle time analysis for each process.
4. Identify which process is the constraint (bottleneck).
5. Determine what actions are necessary to balance the processes.
6. Use the standard layout and work combination sheets to document each of the balanced processes.

The purpose of doing this practical exercise is to give you some experience in identifying constraints and balancing the processes involved in a healthcare system. Once you have defined the necessary actions, the next step is to create the standard work documents to visually demonstrate the workplace layout and work activities

It's important to remember, this is a training exercise designed to help you, so try to have fun with it.



End of Presentation.

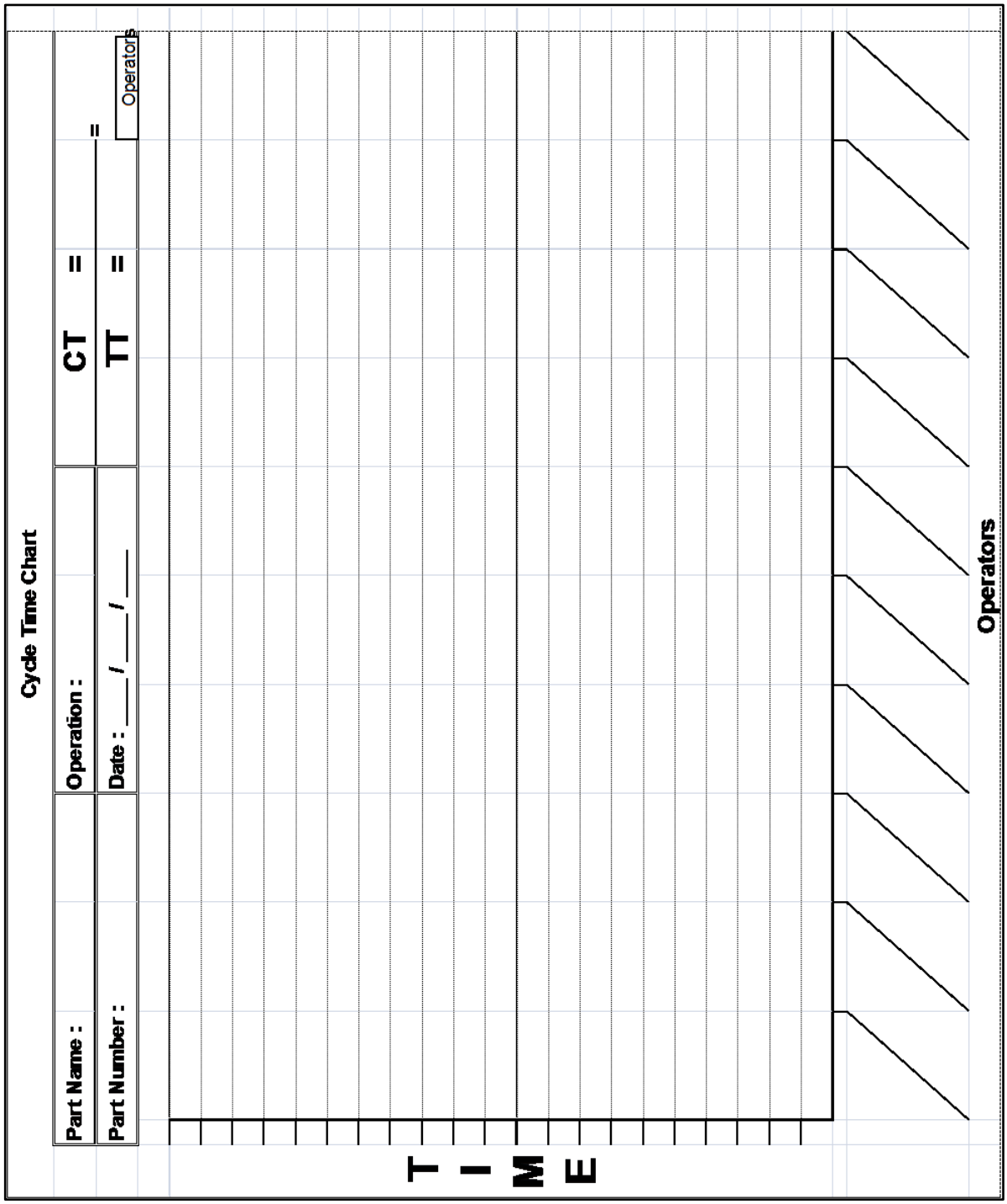
Congratulations, you have now completed this presentation, which is Part 6 – Step 7 of your Level 2 – Lean Practitioner in Healthcare online course materials.

Please go to Part 6 – Step 8 of your Level 2 – Lean Practitioner in Healthcare online course materials.

Notes

Documents List

1. **Cycle Time Chart Sheet**
2. **Standard Work Layout Sheet (SWLS).**



Standard Work Layout Sheet

Operation	From:	Department:	Part Name:	Date:
Sequence	To:	Plant	Part #:	

Quality Check	Safety Precaution	Standard WIP	TAKT Time	Total Walk Distance/ Unit
◇	✚	◯		

