exhibit 12.15 Operations and Setup Time

Operation Number and Name	Operation Time (Minutes)	Setup Time (Minutes)
Milling for Model Z	20	60
1 Lathe	50	30
2 Mod. 14 drill	15	5
3 Mod. 14 drill	40	5
4 Assembly step 1	50	
Assembly step 2	45	
Assembly step 3	50	
5 Inspection	30	
6 Paint	30	20
7 Oven	50	
8 Packing	5	

2 Make recommendations for lean improvements in such areas as scheduling, layout, kanban, task groupings, and inventory. Use quantitative data as much as possible; state necessary assumptions.

3 Sketch the operation of a pull system for running Quality Parts Company's current system.

4 Outline a plan for introducing lean at Quality Parts Company.

Case: Value Stream Mapping

Value stream mapping involves first developing a baseline map of the current situation of a company's external and/or internal operations, and then applying lean concepts, developing a future state map that shows improved operations. Exhibit 12.16, for example, shows the current state with a production lead time of 4.5 days. This system is a batch/push system (indicated by striped arrows) resulting in long delays and inventory buildups. Exhibit 12.17 shows the future state map with a production lead time of 0.25 day. This was accomplished by moving to a continuous-flow pull system and attacking the seven wastes. Value stream mapping uses a number of special icons and display format of boxes and flows. For a more complete discussion of the methodology, see Jared Lovelle.[8]

Questions

1 Eliminating the queue of work dramatically quickens the time it takes a part to flow through the system. What are the disadvantages of removing those queues?

2 How do you think the machine operators would react to the change?

3 What would you do to ensure that the operators were kept busy?

Case: Pro Fishing Boats—A Value Stream Mapping Exercise

A fishing boat manufacturer, Pro Fishing Boats, is having many problems with critical globally sourced parts. Pro Fishing has two manufacturing facilities in the United States. The firm's reliance on efficient global supply chain operations is increasing as the manufacturer is sourcing more and more parts overseas, including critical components. Recent problems with a number of these critical parts have caused line shutdowns. In response, Pro Fishing has *mandated* a six-week inventory on all globally sourced parts. Management has asked you to evaluate whether this is the right decision.

First, you must understand Pro Fishing's supply chain. Currently, there is very little visibility (knowledge of the current status) of inventory in the supply chain, and communication with the supply base is minimal. In fact, the boat