

# Circuit board fabricators, inc essay



**ASSIGN  
BUSTER**

CBF hired you to help determine why it is not able to produce the 1, 000 boards per day.

1. What type of process flow structure is CBF using?
2. Diagram the process in a manner similar to Exhibit 6. 7.
3. Analyze the capacity of the process.
4. What is the impact of the losses in the process in Inspection and Final Test?
5. What recommendation would you make for a short-term solution of CBF's problems?
6. What long-term recommendations would you make.

1. Manufacturing cell.

2. See below.

3. If you figure the run time for minutes per part divided by the number of employees the processes that take the most time are the clean, coat, and the final test. You would have to increase the # of machines to cut down on the time to clean and coat or increase the # of machines and employees to cut down on final test time.

4. The impact of losses in the inspection and final test are wasted boards and wasted machine and employee time that was put into the boards. If 15% are rejected in the inspection that is 4. 4 minutes in wasted machine/employee time per part that is rejected. If 5% of boards are rejected in the final test that is the 4. 04 minutes per part wasted and an additional 2. 36minutes in wasted time for 5% of the 85% of boards that made it through the inspection.

5. My recommendation would be to offer overtime for a short term solution to the problem. A more drastic short term solution would to include an overnight shift that could double the output without increasing the number of machines.

6. For a long term solution I would suggest to cut down on the bottlenecks in the process which are the clean, coat, and final test which take the longest. I would suggest one more of each the clean and coat machines and two buy 2 more final test machines and 2 more employees to conduct them. Finished orders are packed and shipped. Good boards are loaded onto the cart to take to the shipping area and bad boards are scraped. Final electrical test is performed on each board; operators load and unload each board. (1 operator/ machine, 5% rejected, 2. 9min / part + 15min / job) After plating boards are moved off conveyor onto cart.

Boards are loaded and unloaded into copper plating bath deposits copper into the holes. (1 operator . 2min/part + 5min /job) The carts are used to take orders to the copper plate bath. Boards are loaded and unloaded into a drilling machine that uses NC to connect circuits. (1 operator/2 machines, 1. 5min/part + 15min /job) Boards go through the oven hardening the plastic. (. 66min/part) Boards are unloaded onto a cart and then full carts are moved to the drilling machine. inspectors pick up each board and optically inspect them for defects using a machine. Boards that pass are put back on the conveyor that feeds the bake oven. (15% rejected, . 5 min/part)

Operator manually loads each board into developer that dips it in chemical bath and then places on conveyor. (. 33min/part + 5min /job) Expose to

photographic process must be overseen by an operator to load and unload each board. (1. 72min/part+15min per job) Operator places boards on a cart and moves each full cart to the clear room. (. 33min/part) Board transferred to the coating machine. Boards coated with liquid plastic on both sides. (. 5 min/part) Machine cleans the board with chemical. (. 5min/part) Board is manually loaded into machine by operator. (. 33 min/part +5min/job setup) Machines are programmed to produce the order using computer-aided design. Order is checked that it will fit within the specs of boards that can be produced with CBF equipment. Order received from customers Blank boards received from vendor