MIZUSUMASHI (WATER SPIDER)

◇ Definition

Mizusumashi (= ultra high frequency pulling) is a method of transportation (or the provider of such transportation) used to collect and deliver things in kits to multiple processes that need them on the just-in-time basis.

◇ PURPOSE

To make it easy to look over the line so that the managers/supervisors can carry out Kaizen easily and proceed with independent Kaizen.

‥‥‥ Mizusumashi is not a means to enhance the efficiency of transportation.

◇ IMPACT (ON THE LINE)

○ Eliminate the motion of the operator turning back.
(Improve the economy of motion of the operator)

○ Eliminate the work of choosing parts.

○ Eliminate a simple assembler to a total builder.

● From a simple assembler to a total builder.

(Speed up the process of developing multi-skilled cross-functional workers. New workers should be able to placed in workplace immediately.)

● Prevention of mistakes and mismatches in assembly operations.

○ Line delay and progress become visible.
(Mizusumashi is a pace-maker.)

○ Operator's waiting time becomes visible.
(Last ditch spurt to catch up becomes impossible.)

THE TOOLS OF MIZUSUMASHI

1. Pushcart
   - The wheels underneath the cart should be as small as the casters of a chair so as to make it easy to maneuver the cart back, forth and sideway.
   - Make it possible for Mizusumashi to read and check off items while walking.
   - Make arrangements for easy placement of parts on the line-side supply table.

     (If a motorized vehicle is used, make it possible for Mizusumashi to perform picking and delivery without getting off the vehicle.)

2. PICKING LIST
   - The list should clearly show what to deliver to which processes each time.
   - Create time differentials in checking off and structure depending on the standard work-in-process in the line.
   - Develop a way to print out lists periodically by taking information from the front reader (FR), schedule board, etc.
   - Make the list easy to read.

     (Leave spaces between lines.
     Limit the number of items.)

3. STORE SHELVES
   - Two-tier shelves in principle.
   - Picker should be able to pick at a height no higher them his shoulder and without bending down.
4. LINE-SIDE SUPPLY TABLE
   - Make it easy to transfer parts from the cart to the supply table.
   - Create enough space for only one kit (parts for one unit) at each process in principle.
5. PICKING CONTAINER
   - Pay attention to the operability and quality at each process.
   - Use containers as pace-makers for Mizusumashi.

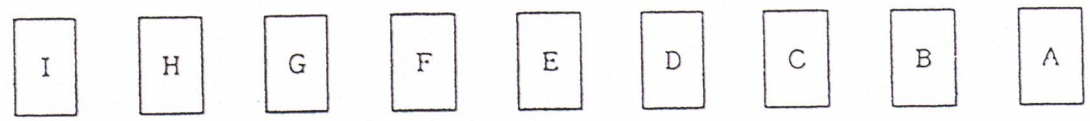
     (Full or empty container)

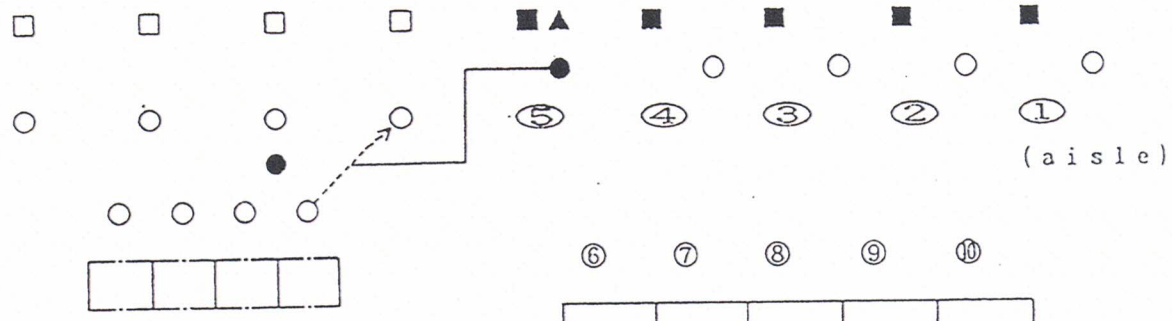
◇ PREPARATION TO START MIZUSUMASHI OPERATIONS

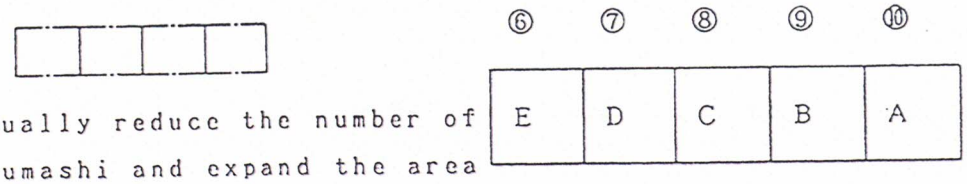
ITEM	NOTE
○ Identify mizusumashi processes. Identify mizusumashi parts.	· Pulling one kit at a time in tact time is the rule in principle.
○ Make a list of mizusumashi parts. Research on containers and bins.	
○ Check the configuration of the cart and decide parts arrangement on store shelves.	· Arrange in such a way that the mizusumashi can pick easily.
○ Secure space, set shelves ready and create a store.	· Place the store as close to the processes as possible.
○ Create a picking container.	
○ Set line-side supply points and install supply tables	· Install them where it is easiest for the operator to pick.
○ Build a mizusumashi picking cart.	
○ Determine standard work-in-process in the line. Determine process time differentials.	· Change the time differentials only when there is a change in standard work-in-time
○ Decide the format of the picking list. Develop a system to produce lists.	
○ Determine who is to act as mizusumashi.	The mizusumashi should be a person who is qualified to become a lead man or team leader next.

◇ IMPLEMENTATION OF MIZUSUMASHI : CONCEPTUAL DIAGRAM

[LINE]







Gradually reduce the number of mizusumashi and expand the area of coverage.

- Improve the economy of motion of mizusumashi to a level where he dose not pause at each point.
- Deliver parts to the line side in a kit in principle.
- Standard work (form) for mizusumashi

◇THE ROLE OF MANAGER / SUPERVISOR AFTER MIZUSUMASHI IMPLEMENTATION

1. Improve the economy of motion thoroughly so the mizusumashi can collect and deliver parts according to the takt time.
2. Improve the economy of motion of line operators.
3. Discover line operator waiting time and reallocate work according to the tact times.
4. Reduce the number of people, get the needed people and gradually expand the scope of activity for mizusumashi.

END