完全 KANZEN INSTITUTE
Towards Perfection

CASE STUDY – TRUCK & BUS BUILDING

The Value Stream Map and Material Flow Diagram were prepared and bottleneck areas identified for improvement. Two product streams required improvement:

1) **Tipper Cabin Building**
2) **SLR frame – chasis machining**

<u>Improvement Project 1– Tipper Cabin Building</u>

Goal: To double the production rate of tipper cabins per day

Main Observations:

- ✓ Each tipper is travelling almost 2 km within the premises to undergo various operations – sub assembly, assembly, paining, trim fitting and testing.
- ✓ The tippers are found waiting before each process
- ✓ Most assembly operations are done on the tipper body itself
- ✓ Time taken to do masking before painting
- ✓ Trim fitting is also a bottleneck – operators are working in uncomfortable positions on the cabin

Actions Taken

- ✓ Paradigm changed – tipper does not move but is parked in work bay. The operator groups move to each tipper one after another to complete their respective work – no waiting time
- ✓ Concept of sub assembly for cabin frames, door frames introduced. Sub assembly tables set up next to the bay for ease of supply
- ✓ Masking templates prepared to reduce preparation time
- ✓ Sequence of activities studied and redefined to do parallel activies as well as reduce waiting time
- ✓ Stands set up for ease of work next to cabin; tools and materials fized to stands for ease of access

Result Obtained

1) Cabin building time reduced from 11 hours to 5.5 hours per tipper – productivity doubled

2) No movement of tippers leaving the roads and gangways free of clutter

Improvement Project 2– SLR chasis machining

Goal: To increase the production of chasis for SLR buses to cater to the urgent customer demand under JnNURM scheme

Main Observations:

- ✓ The machining is the bottleneck operation taking up to 3 hours per chasis – each bus has 2 frames which means the average output is 2 bus per shift with available 2 drill.
- ✓ Time taken to load and unload extra long frame using crane. Machine is idle during this.
- ✓ Sequence of hole drilling – frame movement is zig zag and almost 30% time spent in movement and positioning under the drill

Action taken

- ✓ Instead of doing entire frame in one machine, the work was split amongst the 2 available machines
- ✓ Sequence of drilling fixed to minize unwanted handling and movement of frame
- ✓ Drill bit changing speeded up using quick changeover concepts – external preparation of next drill bit in collet, quick removal and closing
- ✓ Clamping time for frame on bed reduced through quick clamping methods – attached C clamps, hinge type clamping etc

Results Obtained

- ✓ One finished frame received every hour from final drill machine
- ✓ Production volume increased 3 time with same resources