Acme Stamping Steering Bracket Value Stream Improvement

12/6/01 Shook/Verble | DV | JS | MR | JW | KK | FC

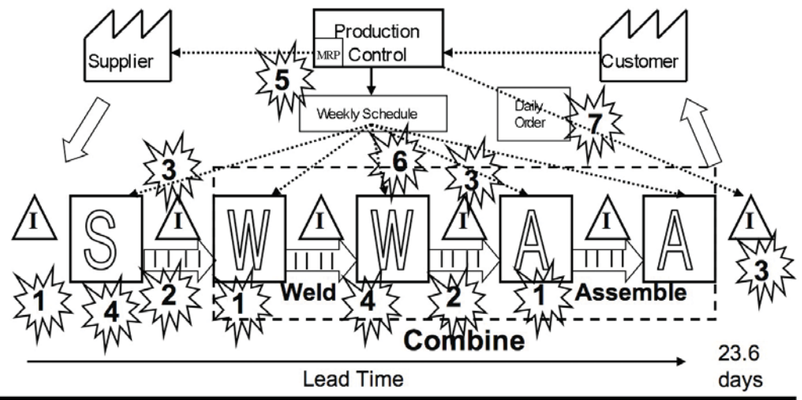
Background

- Product Family: Stamped-Steel Brackets for Steering Wheels (L & R-hand drive).
- 18,400 brackets/month supplied to State Street Assembly in daily shipments on pallets of 10 trays of 20 brackets.
- Customer is considering adding a 3rd shift. Will only be able provide a firm schedule on a rolling two-week basis.

Current Situation

- Current production lead time for State Street orders: 23.6 days
- Current processing time: only 188 seconds.
- Now operating in two shifts, 20 days per month with average 1.1 hours OT/day
- Large inventories of material and Work-in-Progress between processes.
- Long changeover times; downtime in Welding.

Current State Map



Analysis

(1) Each process operates as an isolated island, disconnected from customer.
(2) Push system; **(3)** Inventory builds up between processes.
(4) Each process builds according to its own operating constraints (changeover, downtime, etc.)
(5) Plans based on 90 and 30-day forecasts from customer. **(6)** Weekly schedule for each department. **(7)** System is frequently overridden to make delivery.

Goals: Improve profitability while meeting tougher customer demands:

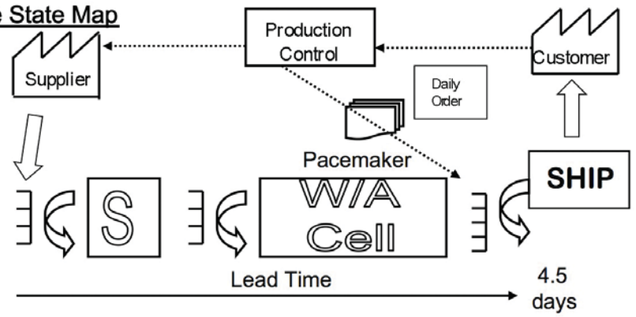
- Reduce lead time – 23.6 days to ≤5 days
- Reduce inventories: Stamping – ≤2 days
  Welding – Eliminate
  Shipping – ≤2 days
- Eliminate Overtime on all shifts

Countermeasures :

- Create continuous flow in through Weld and Assembly as a Cell **> (1)**
- Establish Takt Time: Base the pace of work through Weld and Assembly on customer demand at Ship **>(5)**
- Set new Weld-Assembly cell as pacemaker for entire value stream **> (1)**
- Establish Build-Schedule for Stamp based on actual use of Pacemaker Cell and pull steel coils from supplier based on actual Stamp usage **> (3)**
- Reduce Changeover time in Stamp & Weld; Improve uptime in Weld **> (4)**
- Establish Kanban system, Supermarkets & material handling routes for frequent withdrawal and delivery **> (2)**
- Establish new production instruction system with Leveling Box **>(6 & 7)**

BENEFITS: Lead Time & Inventory reduction to 4.5 days allowing flexible to meet 3 shift demand of customer without overtime or adding 3rd shift
COSTS: $25K (estimated) will be recovered in 14 months from new revenue

Future State Map



DELIVERABLES	1 2 3 4 5 6 7 8 9 10 11 12	RESPONSIBLE	REVIEW
CCF at Pacemaker	○ △	Assemble Spvr	Plt Mgr, VSMgr
Kaizen each c/t to <TT	○ ○ △		
Weld uptime to 100%	○ △	Mt'l Hndlg Spvr	Plt Mgr, MH Mgr, VSMgr
c/o reduction to <TT	○ △ △		
Pull at Pacemaker	○ △ △		
FG = 2 days	○ △ △		
Kanban System	○ △ △		
Mt'l handling	△ △ △		
Leveling Box	△ △ △		
Pull from Stamping	○ △ △	Mt'l Hndlg Spvr	Plt Mgr, MH Mgr, VSMgr
WIP = 1 day	○ △ △		
c/o < 10 min	○ ○ △		
Pull from Supplier	○ △ △	Prod Ctrl Spvr	PC Mgr, Plt Mgr, VSMgr
Info flow	○ △ △		
Daily delivery	○ △ △		
RM = 1.5 days	○ △ △		

Start Plan/Actual ○/○ Review Plan/Actual ◇/◇ Finish Plan/Actual △/△

Follow-up

-Establish monthly review cycle with management of related departments: PC, MH, Pur, Maint, HR, Fin.
-Create Tracking Center between Stamping & Weld/Assembly Cell
-Track reduction of lead-time, inventory, overtime as well as plan status