

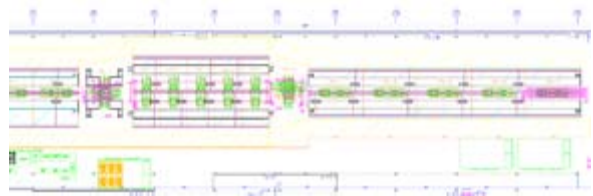


Process Development

New Process Development Leads to Methods and Throughput Improvements for Military Truck Manufacturer

Client:
Military Truck Manufacturer

- Objectives:**
1. Return costly outsourced work to plant
 2. Increase capacity by 50%
 3. Develop process content, sequence, times & flow
 4. Develop work station tooling & layout requirements
 5. Develop operator instructions & work flow charts
 6. Develop material handling layout & operations



Process Layout

Project Description:

Increased capacity and improved cost were required to produce product orders in the time required by the client. Sandalwood provided a multi-disciplined engineering team to work with the client in evaluating product content, methods, labor and equipment requirements. A new manufacturing layout was developed for an existing warehouse facility. Operation layouts and assignments were developed incorporating material handling requirements, operator instructions and work flow diagrams. Material handling operations and equipment were developed for flexible material flow. New process equipment and tools were designed, purchased and implemented to provide improved throughput capability.

Step #	Task	Time (min)	Where
1 SA	Get Brake Exhaust Elbow (100007), Parallel Exhaust Pipe (100010) and (1) Lap Joint Clamp (100041)	0.50	Ext.
2 SA	Assemble Pipe to Elbow and position Lap Joint Clamp.	0.40	Ext.
3 SA	Get Power Tool and secure Lap Joint Clamp.	0.20	Ext.
4 SA	Get Exhaust Pipe Wrap (100020) around Pipe when needed as noted.		Ext.
5 SA	Get Wrap on noted Elbow. Position Standard Clamp over Wrap and secure with Power Tool.	1.00	Ext.
6 SA	Continue to next Pipe to connection end.	1.00	Ext.
7	Get Whipped Pipe, Elbow (100025) and (1) Lap Joint Clamp (100041).	0.30	Ext.
8	Position Whipped Pipe.	0.50	Ext.
9	Position Whipped Pipe to Elbow and position Clamp.	0.30	Ext.
10	Get Power Tool and secure Lap Joint Clamp.	0.30	Ext.
11	Continue Wrap over Lap Joint Clamp to "Hot". Cut Wrap to desired length at joint.	0.50	Ext.
12	Position Standard Clamp over Wrap and secure with Power Tool.	0.30	Ext.
Cycle Time Total:		5.30	

Process #	Process Name	Time (min)	Where
1	Engine Harness to Engine Compartment Harness	1.0	Ext.
2	Power Steering Hose to Steering Gear	6.0	Ext.
3	Air Compressor to Driver / Governor	2.0	Ext.
4	AC Hoses to Quick Disconnect Tees	3.0	Ext.
5	Electrical Connections to Generator	6.1	Ext.
6	Cooling System Hose Connections	13.5	Ext.
7	Air Filter Connection to Turbo Inlet	3.0	Ext.
8	Install Pre-Filter and Air Filter Connection		Ext.
9	Internal Exhaust Connections	5.0	Ext.
10	AC Refrigerant Charge	10.0	Ext.
11	Power Steering Fit	10.0	Ext.
12	Marine Cooler Fit	10.0	Ext.
13	Fuel Fill - 60 Gallon	10.0	Ext.
14	Fuel Fill - 10 Gallon	2.0	Ext.
Cycle Time Total:		62.0	

Standard Operation Sheet & Station Summary Sheet

Results:

- Capacity increased by 50%
- Costly outsourced operations returned to in-plant operations.
- Assembly line process method installed to improve product flow and throughput.
- In station process control system updated to assure a complete, high quality assembly process.
- Flexible material handling operations and layout installed to allow model mix variations.
- DC Power tool systems installed to provide improved quality for critical fasteners.
- Assembly fixtures, methods and tools designed and installed to improve process quality and repeatability.

SYS #6891	STATION 1	
SYS #6894	SOUTH SIDE (DRIVER)	
PF# 10580	FRONT SUSPENSION HANGERS	
100007	BRACKET, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101129	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101130	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101131	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101132	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101133	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101134	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101135	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101136	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101137	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101138	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101139	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101140	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
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101198	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101199	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA
101200	CLIP, HANGER, MOUNTING CLIP, 2 1/2"	4 EA

Work Station MBOM

Sandalwood is an engineering and ergonomics consulting firm. Since starting in 1989, Sandalwood has designed nearly 1,000 projects that have executed strategic solutions for manufacturers. By providing their knowledge, research, technology, and resources, Sandalwood supports its clients from the executive level to the factory floor so you can...

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