

MARIE KONDO-ING PACCAR'S FABRICATION SHOP

Sparking joy at PACCAR one redesign at a time

DawgPACC

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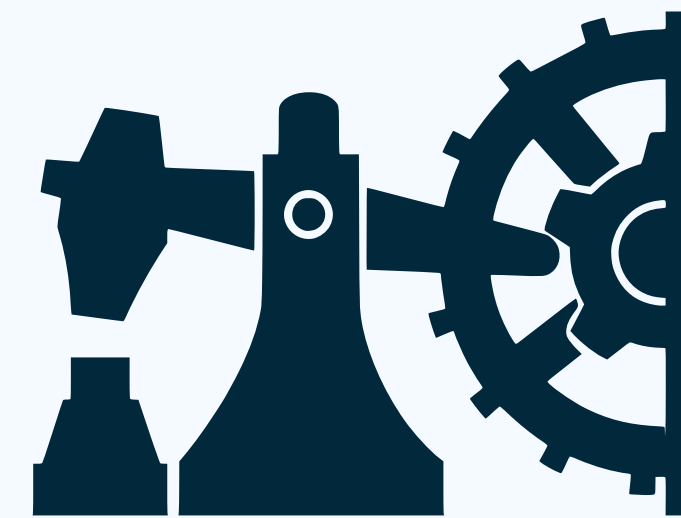
W x PACCAR

Client Overview - PACCAR Fabrication Shop

PACCAR designs and manufactures high quality trucks and engines.



The fabrication shop fulfills work orders to provide precise parts to support these processes.



On top of fulfilling orders, this locations fabrication shop serves as a tour stop for potential clients.



Problem Statement

PACCAR desires to expand the functional capabilities of their fabrication shop, but there is currently **limited spatial capacity to add new machines**.

Data Collection

We first narrowed the scope of the problem by learning which specific areas of the shop were taking up unnecessary space.



Machinist Survey

Interviewed machinists to identify potential areas of improvement and learn their existing opinions.



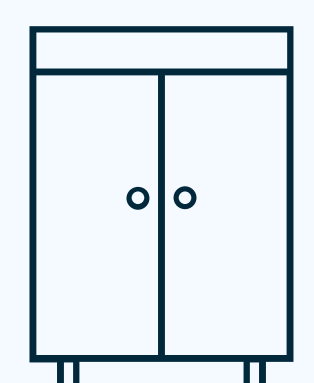
Tool Routing Scavenger Hunt

Recorded the different routes technicians took to locate a list of random tools and how many attempts they took to find each one.



Time Lapse Video Analysis

Analyzed how machinists acquired their tools and when they left their workstation over the course of one workweek.



Machine and Cabinet Inventory

Revised the list of 100+ machines and cabinets on the shop floor and updated the shop floor map.



Work Order Documentation

Modified the work order form such that machinists must document which machines they used for a completed job.

Findings

► Need for Quantitative Data

- Survey results showed that every employee had different opinions on which machines were least used.
- There was no data to reflect actual utilization of machines.
- Decisions for machine removal were delayed due to lack of information.

► Need for Documentation

- Existing maps did not accurately reflect the current layout.
- There was no record of when tools were used or should be discarded.

► Need for Better Organization

- Of 10 randomly selected tools, a tool's correct location was identified on the first attempt less than 50% of the time.
- Machinists left their work stations multiple times to retrieve tools and parts in the same areas.

See the routes taken here!



Tool Routing
Scavenger Hunt
Flipbook

Solutions

Tool Cabinet and Workbench Reorganization

Tool storage was reorganized with the goal of discarding unused materials and making each tool more accessible according to 6S.

Before:



After:



- Small parts at **eye level** and not stacked
- **Easily accessible** large part bins
- **15%** of items are unused and **discarded or red-tagged**
- **Labels** for multi-size parts
- **Designated and marked** spaces for easy returns

Machine Usage Tracker

From the work order input from the machinists, machine usage will be imported and **continuously updated** in an excel pivot table to visually and statistically **analyze utilization and seasonality** over time.

Redesigned Floor Layout

We thoughtfully rearranged the machines and storage on a 3D printed rendering of the fabrication shop. With the new layout we keep **adequate walking space**, **increase spatial capacity**, **propose which machines to remove**, and **where to put new machines**.

Results

Our fabrication shop redesign eliminates underutilized machines, condenses cabinet contents, and allows more space for machines. If PACCAR applies the solutions we present here, we expect the following results:

15% increase in spatial capacity

3+ new machines can be added

20% storage space saved

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