



# Preventative Maintenance

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# Define Preventative Maintenance

- Performance of timely routine maintenance to ensure long equipment life, reduce down time, reduce replacement cost, and improved operational efficiencies.

# Types of Maintenance Programs

It all boils down to 3 basic types

General care and upkeep – Maintenance performed at regular intervals that maintains the equipment in good working order.

Break down maintenance - Maintenance performed when components fail.

Preventative maintenance - Maintenance performed before components fail.

# General Care and Upkeep

## Pro's

- Prolongs equipment life
- Reduces unplanned down time
- Maximizes component life
- Customer and Government adherence

## Con's

- None – This is a must do!



# Break Down Maintenance



## Pro's

- The absolute most is obtained from components.
- Potential cost benefits.
- Less Staffing

## Con's

- Potential to effect the life of other components.
- Unpredictable downtime occurrences.
- Unpredictable budget
- Increased parts warehousing
- Increased chance Catastrophic failure.

# Preventative Maintenance

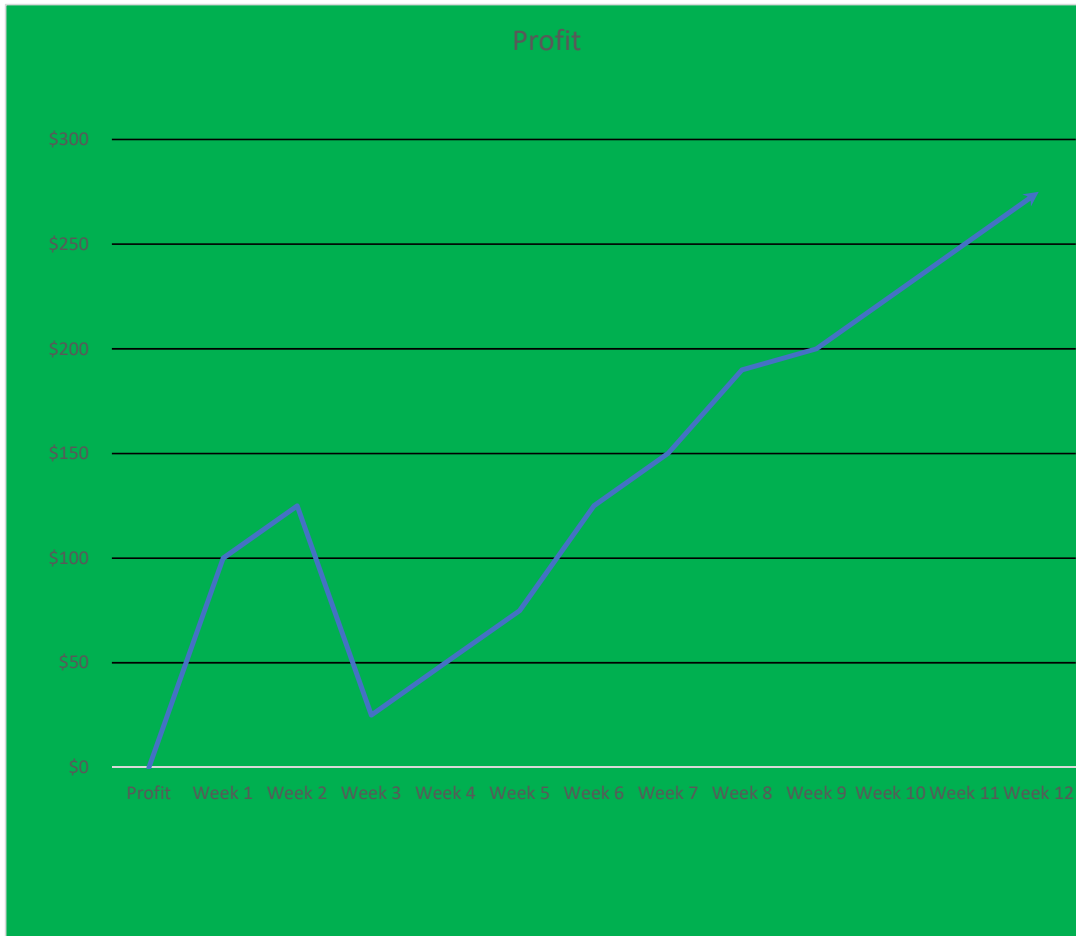


## Pro's

- Predictable Line Availability
  - Scheduling
  - Improved Capacity Analysis
- Maximizes Uptime
- Improved Budget Accuracy
- Prolonged Equipment Life
- Maintain Quality
- Reduced Parts Warehousing

## Con's

- Reduced realization of component life cycle.
- If not performed correctly, it could increase your down time.
- Requires Data Analysis – Potentially increasing cost



## Benefits of Preventative Maintenance

- Increased Operational Efficiencies
- Increased Quality
  - Ability to achieve product specifications
- Prolong the life of Equipment
- Improves the ability to meet customer expectations
- Budgeting of replacement
- Improved Maintenance Cost



## How to Choose a strategy

Several factors must be considered.

- Part Availability
- Repair / Replacement time
- Risk to other components / quality / Safety of the operation
- Cost of the component
- Component dependability



# How to Implement a strategy cont.



- General Care and Upkeep
- A maintenance schedule is typically provided from the equipment supplier.
- Improvements to the schedule and replacement components can and should be pursued.

Sometimes being cheap ultimately cost more!

# How to implement a strategy cont. Break Down Maintenance

## Do if

- The part is readily available
- Easily accessible
- Low degree of special skill to install
- Safety and quality isn't impacted

## Don't Do

- Potential Safety Risk
- Quality is impacted
- The risk to other components is high
- Tight capacities to fill customer demand



# How to Implement a strategy cont. Preventative Maintenance

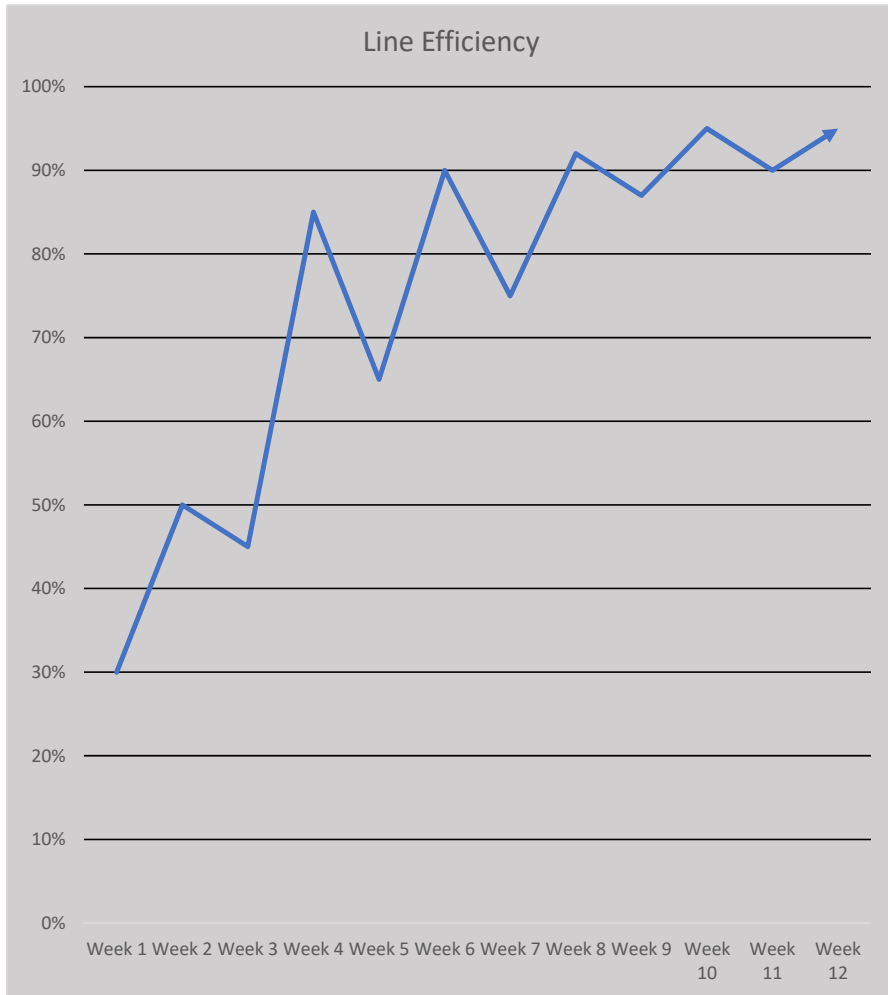
## Do if:

- Component is difficult to obtain or Replace
- Special Skills are needed
- Cost is high – Budgeting
- Equipment is unavailable for a long period of time during replacement.

## Assistance:

- Vibration detection
- Oil analysis
- Infrared detection
- Records System





## How to improve Preventative Maintenance

- Review Performance and Downtime
  - Measure effectiveness of your PM program
- Regular Audits of equipment components
  - Evaluate wear
- Honest evaluation of replacement cost & risk of failure
  - Risk of failure – Down for 2 hours vs 20 hours – Lead Time for parts (readily available vs. an overseas part with 6 week lead time.)
- SMED – Access to equipment. (process layout – access points)