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The “5S” Philosophy

A better
Work Environment for
Everyone

TOPICS

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The “5S” Philosophy

Based on Japanese words that begin with S, the 5S Philosophy focuses on effective work place organization and standardized work procedures. 5S simplifies your work environment, reduces waste and non-value activity while improving quality efficiency and safety.

If you're going to do it, do it RIGHT!

5S Objectives

- **What we want from 5S activity ?**

Problems cannot be clearly seen when the work place is unorganized.

Cleaning and organizing the workplace helps the team to uncover problems.

Making problems visible is the first step of improvement.

PURPOSE OF 5S

- TO KEEP OUR WORK PLACE CLEAN
- PROVIDES NICE ENVIRONMENT TO WORK
- INCREASE OUR PRODUCTIVITY
- SAVES TIME (MAINLY SEARCHING TIME)
- REDUCE THE COST
- PROVIDES SAFETY
- CREATES JOY WHILE WORKING
- ELIMINATION OF ALL TYPES OF WASTE

ELEMENTS OF 5S

- | | | |
|-------------|---|--|
| 1. SEIRI | → | SORTING OUT
NO UNNECESSARY ITEMS |
| 2. SEITON | → | SYSTEMATIC ARRANGEMENT
PREFIXED LOCATION FOR
PREFIXED QUANTITY BEFORE &
AFTER USE |
| 3. SEISO | → | SPIC AND SPAN
EASY TO CLEAN |
| 4. SEIKETSU | → | STANDARDIZATION
STANDARDS |
| 5. SHITSUKE | → | SELF DISCIPLINE |

Sort – (Seiri)

The first S focuses on eliminating unnecessary items from the workplace.

Sort – (Seiri)

Sorting frees up valuable floor space and eliminates such things as broken tools, obsolete jigs and fixtures, scrap and excess raw material.

The Sort process also helps prevent the ‘hoarder’ job mentality (“I might need it”).

SORTING (Step 1)

- Segregating necessary from unnecessary
- Discarding what is not required
- Deciding on a frequency of sorting

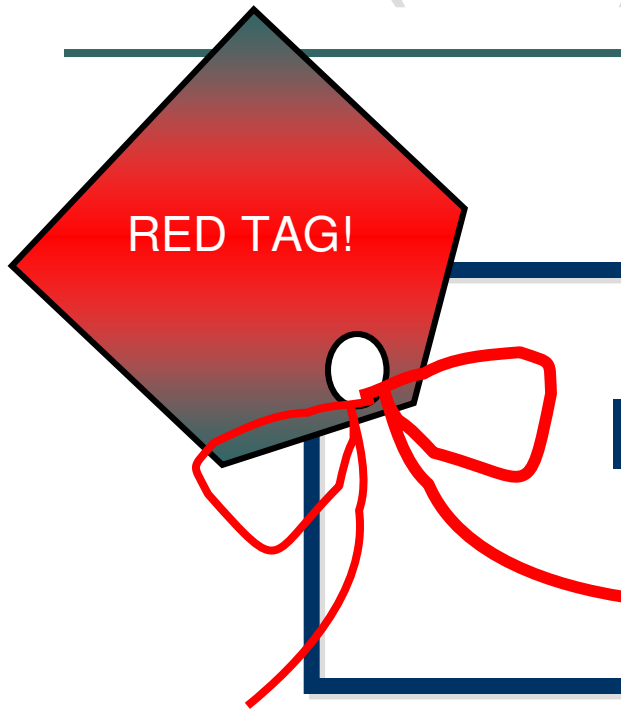
Objective : Save and recover space.

Priority	Frequency of Use	How to use
<i>Low</i>	Less than once per year, Once per year<	Throw away, Store away from the workplace
<i>Average</i>	At least 2/6 months, Once per month, Once per week	Store together but offline
<i>High</i>	Once Per Day	Locate at the workplace

Sort – (Seiri)

An effective visual method to identify these unneeded items is called red tagging. A red tag is placed on all items not required to complete your job. These items are then moved to a central holding area. This process is for evaluation of the red tag items. Occasionally used items are moved to a more organized storage location outside of the work area while unneeded items are discarded.

Sort – (Seiri)



If you don't use it,
remove it!

Using red tag campaigns

CD TVS **5S RED TAG**

Section :

Name of Item :	Quantity :
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Reason :

1. Obsolete	5. Unnecessary
2. Defective	6. Mix up
3. Scrap	7. Unidentified
4. Not in location	8. Others

Action :

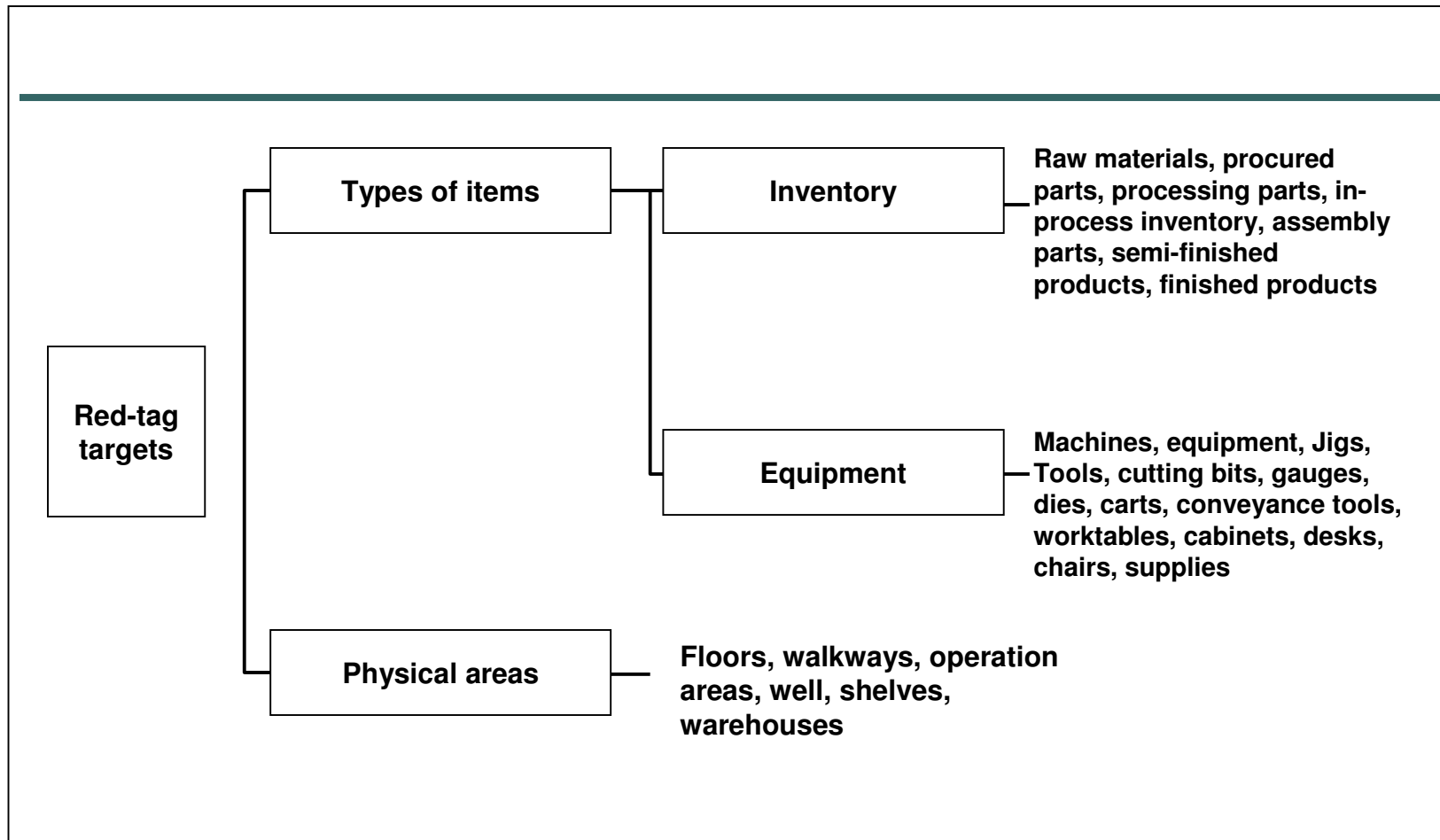
1. Move to scrap yard	4. Rectify
2. Locate properly	5. Return to supplier
3. Segregate	6. Others

Target Date :

Remarks :



SORT – In RED TAG CAMPAIGN



Identifying Red-Tag Targets



STEP II

SYSTEMATIC ARRANGEMENT

**A rational,
orderly and methodical
arrangement of all items we
use, re-work or write off.**

A Place for Everything & Everything in its Place

Set in Order – (Seiton)

The second S focuses on efficient and effective storage methods.

You must ask yourself these questions:

1. What do I need to do my job?
2. Where should I locate this item?
3. How many do I need?



Set in Order – (Seiton)

Strategies for effective Set In Order are:

- Painting floors
- Outlining work areas and locations
- Shadow boards
- Modular shelving and cabinets



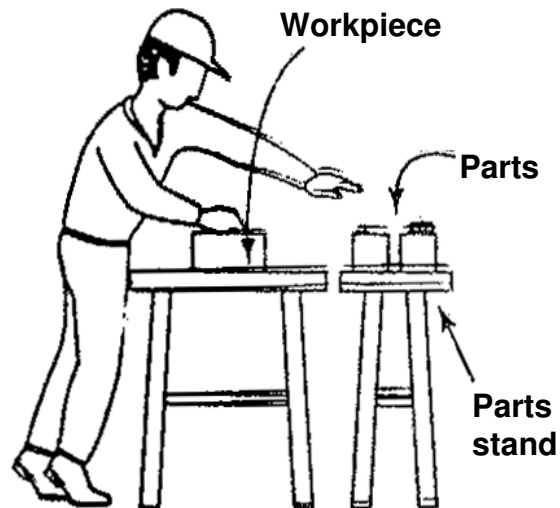
**“A PLACE FOR EVERYTHING AND
EVERYTHING IN ITS PLACE”**

SHADOW BOARDS FOR GAUGES



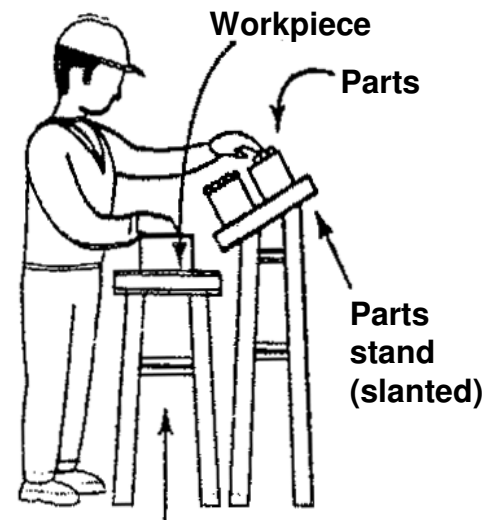
Before Improvement

After Improvement



Worktable

- Worktable was too wide.
- Parts stand was too far away.
- Parts were laid out horizontally, making them hard to see and reach.

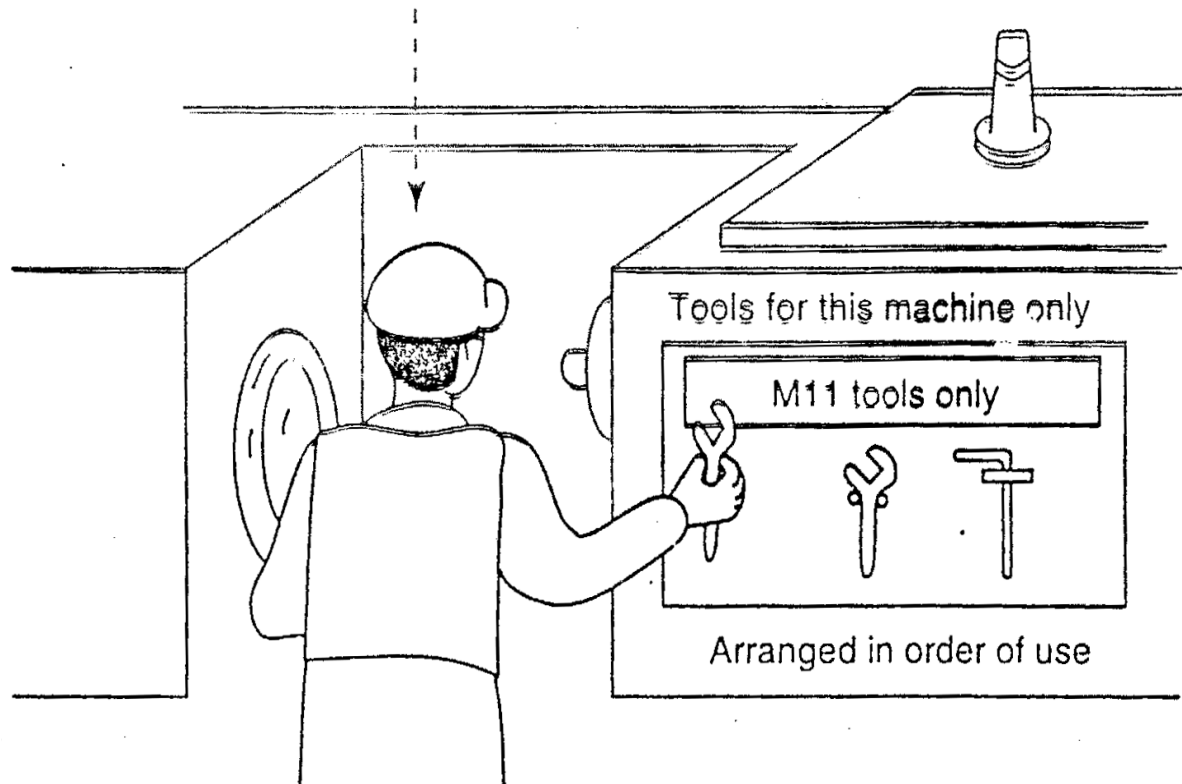


Worktable
(two-thirds width reduction)

- Worktable was made smaller (two-thirds width reduction).
- Parts were put within closer reach.
- Parts were laid out on a slant, making them easier to see and reach.

SET IN ORDER

Operator returns tool without having to step back or look



Tools Kept Close at Hand and Stored in the Order Used

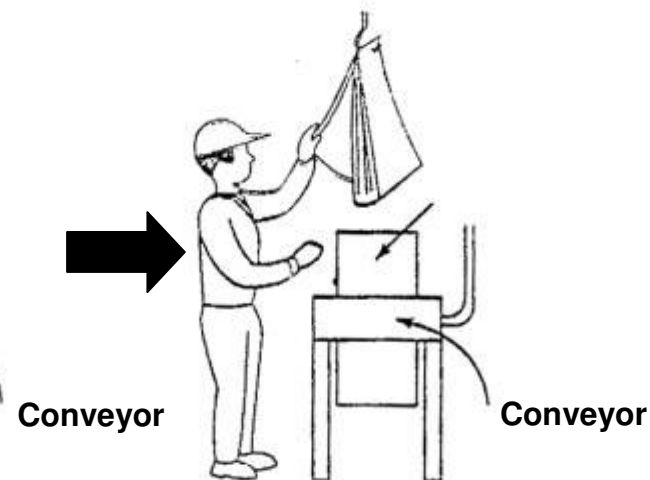
SET IN ORDER

Before Improvement



- Plastic sheets were kept on the rack behind the operator.
- The operator was forced to turn around each time he needed a plastic sheet.
- The turning motion required four seconds.

After Improvement



- Now plastic sheets are hung on a hook in front of operator.
- The operator does not have to turn around.
- Four seconds of motion waste are eliminated.

Step III

3S - SPIC & SPAN

**Understanding how to prevent things
from getting dirty
and ensuring tip top condition**

**(Done with the objective of inspecting
for problems and taking faster
corrective actions)**

Shine – (Seiso)

Once you have eliminated the clutter and junk that has been clogging your work areas and identified and located the necessary items, the next step is to thoroughly clean the work area. Daily follow-up cleaning is necessary in order to sustain this improvement. Workers take pride in a clean and clutter-free work area and the Shine step will help create ownership in the equipment and facility.

Shine – (Seiso)

Workers will also begin to notice changes in equipment and facility location such as air, oil and coolant leaks, repeat contamination and vibration, broken, fatigue, breakage, and misalignment. These changes, if left unattended, could lead to equipment failure and loss of production. Both add up to impact your company's bottom line.



Why Why Analysis

Example 1		
Cylinder Does Not Operate Smoothly		
Question	Answer	
What is Your Final Action	Cleaning Strainer	
After Cleaning Strainer, Is it OK	Yes	
WHY	ANSWER	ACTION
Why did you clean strainer	Strainer was clogged	Clean Strainer
Why Strainer was Clogged	Oil was Dirty	Drain Oil and Clean
Why Oil was Dirty	Dirt entered the tank	Prevent Scattering of chips and cutting fluid
Why does dirt get in	upper plate of tank has hole and gap	Plug hole and gap
Why was hole made	Repair error during maintenance work	Standardise repairs
Example 2		
Oil leaks from cylinder rod each time it operates		
Question	Answer	
What is Your Final Action	Replacing the o-ring	
After replacing the o-ring is it OK?	Yes	
WHY	ANSWER	ACTION
Why did you replace o-ring	o-ring cut	o-ring changed
Why o-ring out?	rod has scratch	scratch removed
why rod has scratch	chips were scattered and attached to rod	measures taken to prevent chips from scattering
Why chips were attached on rod	Cylinder located within scattering range of chips and rod cover is not plaed	cyliners position changed and cover fixed
Why cylinder located within scatterign range of chips and rod cover not replaced	defective design and installation	standard design and installation

STEP IV

4S - STANDARDIZATION

Standardization is the result that exists when the first three pillars – sort, Set-in-order and Shine are properly maintained

- The Place degenerates very quickly if we do not standardize**
- In this stage, we learn about keeping everything clean by making standards**
These are made by the people who work in the area

Examples of Visual Control

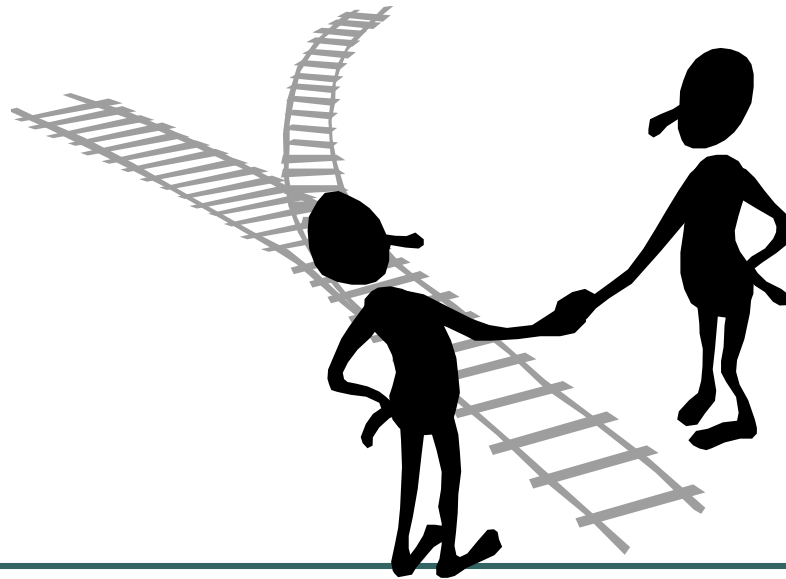
- **Warning lights**
- **Transparent windows**
- **Colour coding**
- **Labels**
- **Position marks**
- **Okay marks**
- **Make spaces transparent**
- **Visualize conditions**
- **What is where chart**
- **Who is where chart**
- **Inspection Labels**
- **How much of 'what' chart**

Direction Flow



Standardize – (Seiketsu)

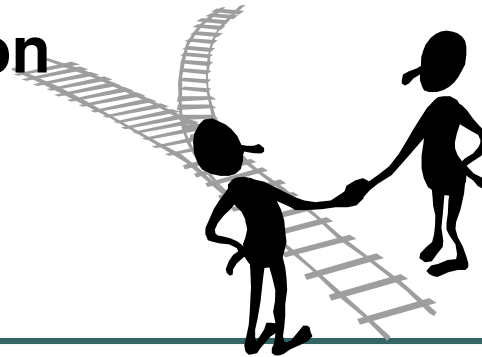
Once the first three of the 5S's have been implemented, you should concentrate on standardizing *best practice* in your work area. Allow your employees to participate in the development and documentation of such standards. They are a valuable but often overlooked source of information regarding their work.



Standardize – (Seiketsu)

Standardize means establishing “Best Manufacturing Practices, including:

- **Workplace Layout and Design**
- **Materials Handling Analysis**
- **Clear and Concise Work Instructions**
- **Well Defined Work Methods**
- **Safe (Ergonomic) Working Practices**
- **Cycle Time Reduction**
- **Training**
- **Documentation**



STANDARDIZATION

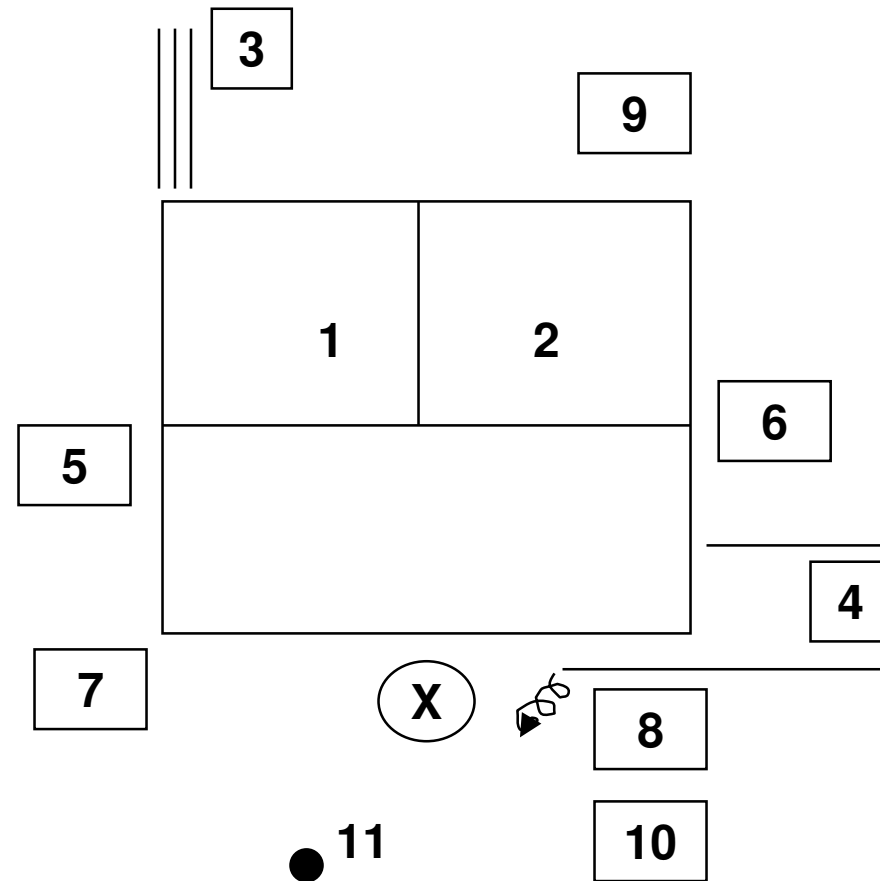
Making Sort, Set-in-order and Shine a Good Habit

These are

- 1. Fix responsibilities for implementing and evaluating system.**
- 2. Integrate these responsibilities into routine work.**
- 3. Check how well the system is working and sustaining itself.**

NECESSARY ITEMS

1. Operator Location
2. Machine
3. Air Gun
4. Power Supply
5. Water Line
6. Out Put Bin
7. Inspection Table
8. Tool Cabinet
9. Chip Bin
10. Dust Bin
11. Fire Extinguish



5S – Set Standards, Practice & Discipline

- Standardizing the 4S practices
- Continuous audit and revision of standards
- Training of concerned in the revised standards
- Abolishing unwanted standards
- Operation Standards, Limit samples, Quality Control Process Charts etc
- Horizontal deployment of standards
- Quality system manual
- Gauge calibration standards

Process of Sustainment

- **Daily monitoring through audit scores**
- **Improving ownership by allocating areas**
- **Using red tag campaigns**
- **Communicating visually through fixed point/worse point photographs**
- **Structured communication**
- **Continuous training of all employees**
- **Periodic audits at all levels**
- **Motivating through recognition**
- **Encouraging house-keeping projects through Total Employee Involvement (TEI)**

5S : SELF DISCIPLINE OR SUSTAIN

Here are some of the things that happen in a company when commitment to the five pillars is not sustained.

1. Unneeded items begin piling up as soon as sorting is completed.
2. No matter how well Set in Order is planned and implemented, tools and jigs do not get returned to their designated places after use.
3. No matter how dirty equipment becomes, little or nothing is done to clean it.
4. Items are left protruding into walkways, causing people to trip and get injured.
5. Dirty machines start to malfunction and produce defective goods.

The “5S” Philosophy **BENEFITS**

Once fully implemented, the 5S process can increase moral, create positive impressions on customers, and increase efficiency of the organization.

Not only will employees feel better about where they work, the effect on continuous improvement can lead to less waste, better quality and shorter lead times.

Any of which will make your organization more profitable and competitive in the market place

TPM n Line.com

Lakshmi Narayanan has been a great supporter of the TPM on Line Group and this is one of his excellent contributions to our purpose of spreading the Lean Culture

Thank You

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