How to Implement Asset Care

Value Chain Competitiveness (VCC)

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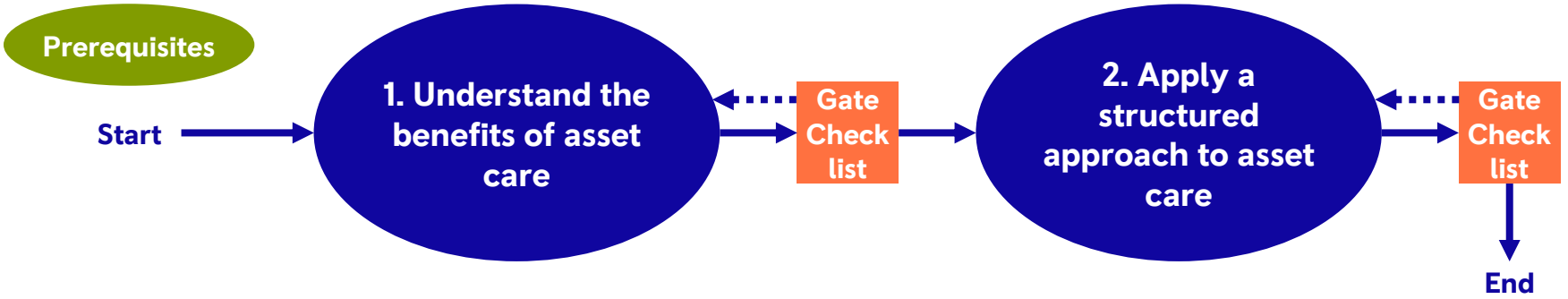
How to Implement Asset Care

Scope | Objectives & Principles



Scope

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This ‘How To’ will enable you to:

- Baseline the existing condition of plant and equipment
- Identify the appropriate actions to improve the plant performance

Objective and Principles

Implement asset care to:

- Keep equipment safe and reliable
- Gain autonomous care of equipment to maximise availability and effectiveness
- Minimise availability losses (eg. breakdowns) and reduce waste

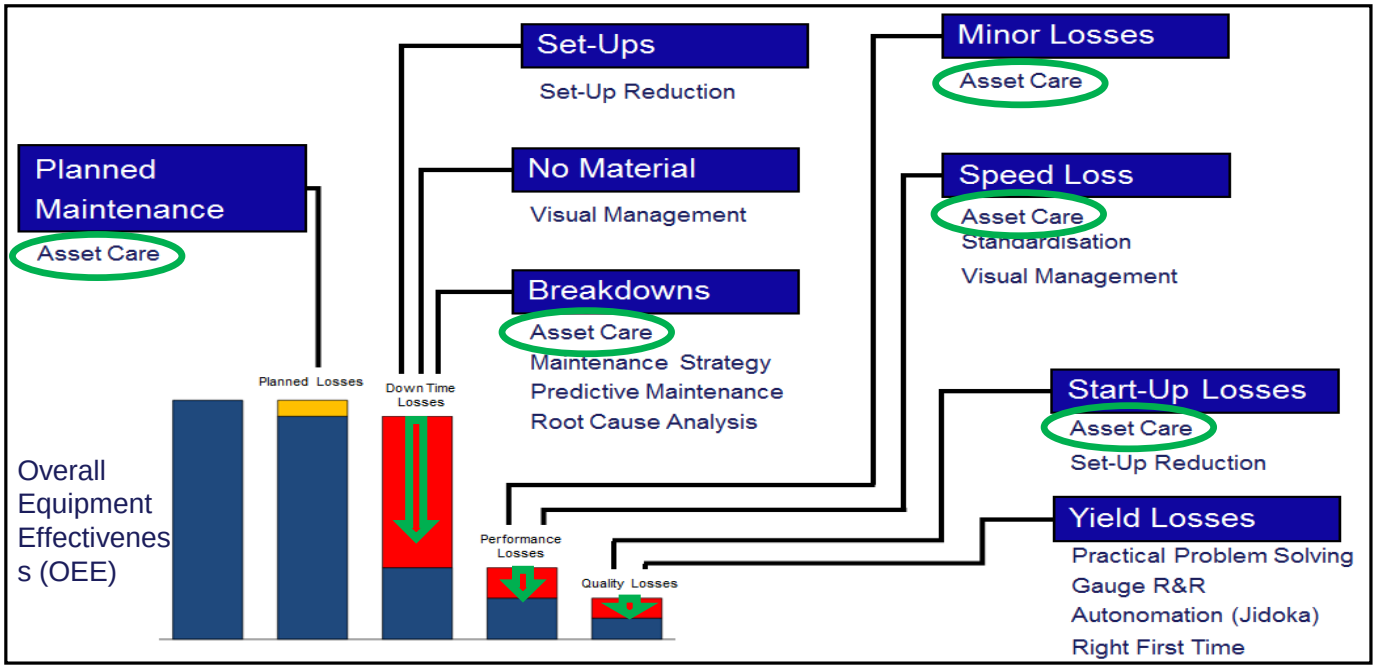
Prerequisites

Knowledge of:

- Maintenance strategy principles
- Failure Mode and Effects Analysis (FMEA)

1. Understand the benefits of asset care

Asset Care is key planned preventative maintenance activity to minimise OEE losses



1. Understand the benefits of asset care

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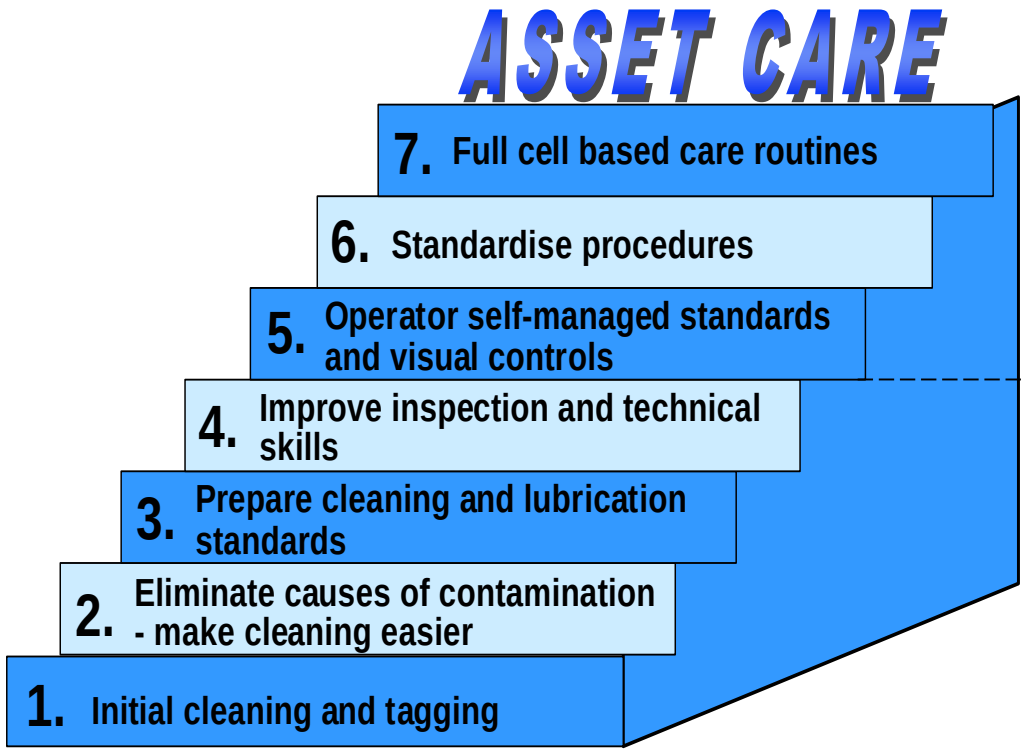
Implementing all steps of asset care delivers many goals and benefits



GOALS

- Operator teams manage their own equipment care activities, supported by maintenance
- Abnormalities in the process, equipment and products are determined 'at a glance'
- Provide and use visual controls so that any minor deviation from normal / optimal conditions are visually detected

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- Make inspection and maintenance
- easier and more effective
- Improve predictability
- Increase skill levels
- Control or prevent deterioration
- Stop accelerated deterioration
- Stabilise equipment conditions

Gate checklist 1: Understand the benefits of asset care

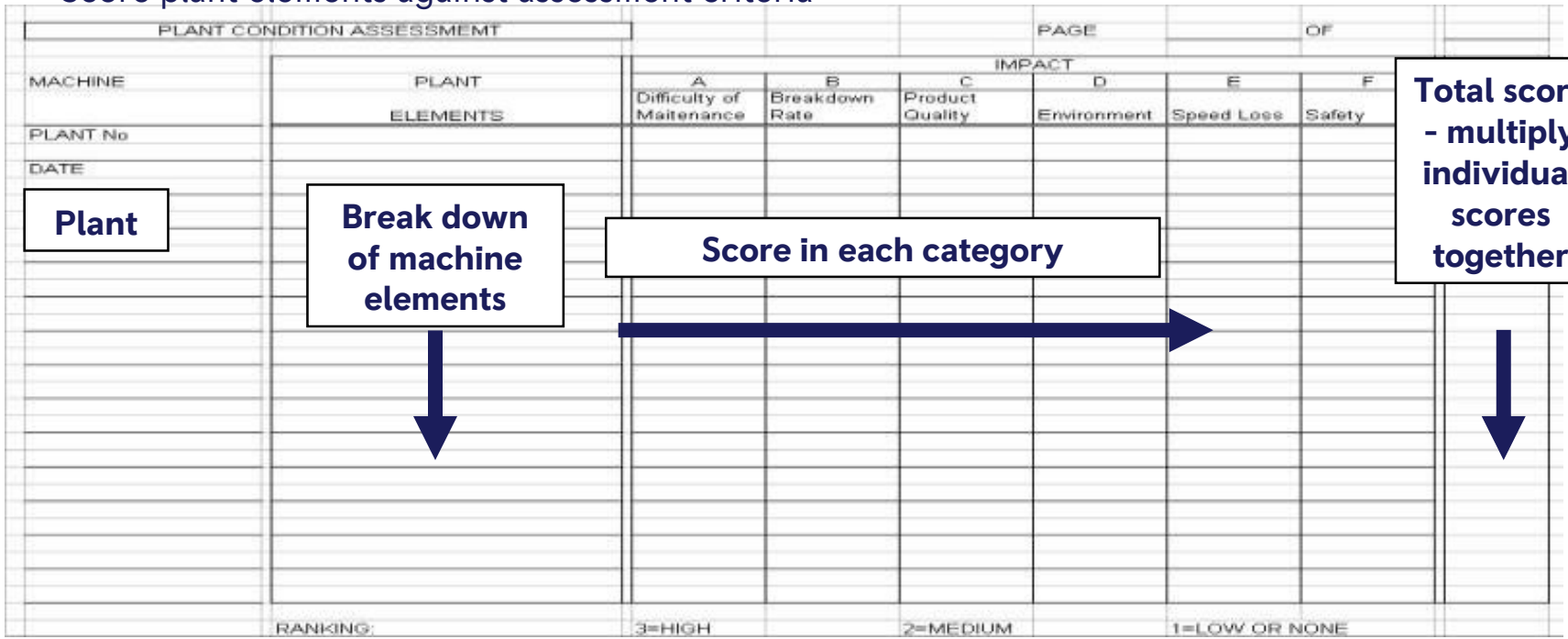
- ☑ Asset Care benefits are understood in relation to Overall Equipment Effectiveness (OEE) improvement

- ☑ Delivering all steps of Asset Care provides benefits to all members operating and supporting plant and equipment

2. Apply a structured approach to asset care

Perform a condition assessment of equipment

Score plant elements against assessment criteria



Scoring Criteria

3 = ‘high impact’ 2 = ‘medium impact’1 = ‘low impact’

2. Apply a structured approach to asset care

Perform a condition assessment of equipment

High' priorities are identified and strategies for improvement developed

Element	Priority	HI-LO	Maintenance	Breakdown	Quality	Environment	Speed	Safety
Nip Rollers	24	HI	1	2	3(2)	1	2	2
Web Guides	12	HI	1	2	3(2)	1	2	1
Drive Roller	6	HI	1	1	3(2)	1	2	1
Path Rollers	2	lo	1	1	2	1	1	1
Severer	2	lo	1	1	1	1	1	2
QTMS Sensor	2	lo	1	2	1	1	1	1
Web Meter	1	lo	1	1	1	1	1	1

Select appropriate action

Strategy	Ease of Maintenance	Breakdown Rate	Quality	Speed	Environment	Safety
Modify						
Re-design						
Repair						
Refurbish						
Operator Care Routines						
Preventive Maintenance						
Deep-Clean						

Strong Correlation

Weak Correlation

2. Apply a structured approach to asset care

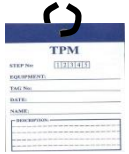
The Asset Care Process

1. Initial cleaning and tagging

1. Form the Team

2. Identify fault with asset through cleaning and inspection

3. Obtain new Asset tag

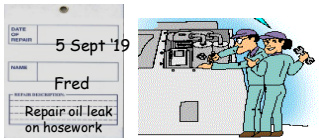


4. Write fault / improvement details onto tag and attach to asset

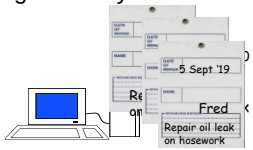
5. Rear sheet of tags collected and given to Maintenance representative

6. Summarise all tag details onto a asset Improvement sheet and post on asset Care board - agree with Maintenance target dates for each item

7. Maintenance carry out repair / improvement on the asset and record details on rear of tag



8. Tags taken off asset and entered onto Maintenance Management System



9. Asset Improvement sheet updated - filed in ASSET log book

- Introduces routine cleaning and inspection by operators
- Focuses on main body of machine
- Exposes abnormal conditions such as :
  - broken or damaged parts
  - wear and tear
  - play or looseness
  - misalignment
  - leaks
  - defects hidden by dirt

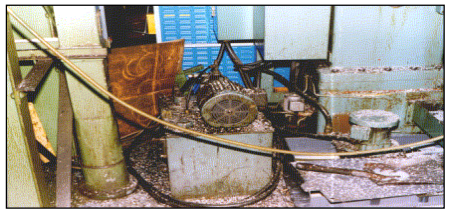
2. Apply a structured approach to asset care

The Asset Care process

2. Eliminate causes of contamination - make cleaning easier

Objectives

- To prevent deterioration by stopping problems at source
- To make cleaning and inspection easier
- To encourage teams to be creative in controlling equipment



Targets

- Eliminate contamination that appears after thorough cleaning
- Reduce time spent in daily cleaning to 10 mins
- Improve the ease of inspecting the machine

2. Apply a structured approach to asset care

The Asset Care process

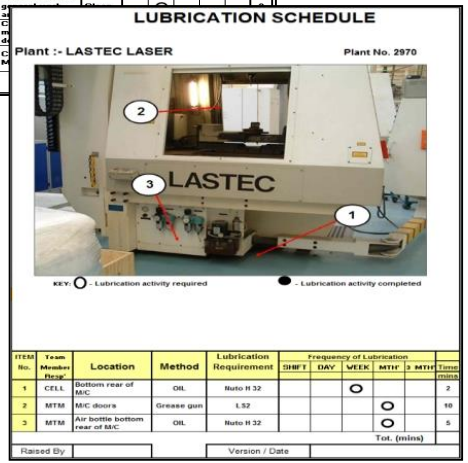
3. Prepare cleaning and lubrication standards

Objectives

- Standardise cleaning, inspection and lubrication tasks

Targets

- Determine who, how and where to perform cleaning and lubrication
- Label lubrication inlets and inspection sites
- Organise lubricants and equipment
- Develop provisional standards
- Document standards in simple, visual procedures



2. Apply a structured approach to asset care

BACK Map NEXT

The Asset Care process

4. Improve inspection and technical skills

Objectives

- Provide education and training for operators on general elements; lubrication, pneumatics hydraulics, drive systems

Targets

- To build operators machine knowledge, inspection and diagnostic skills through hands-on application
- Expand the scope of routine inspection
- Promote restoration of the machine and enhance preventative maintenance using visual controls

- Inspection elements
  - lubrication
  - asset elements
  - pneumatics
  - hydraulics
  - drive systems
- Determine what will be taught and how
  - train the trainer
  - guided inspection
  - one point lessons
  - cut-away models
  - visual controls
  - refine Step 3 routines

2. Apply a structured approach to asset care

BACK Map NEXT

The Asset Care process

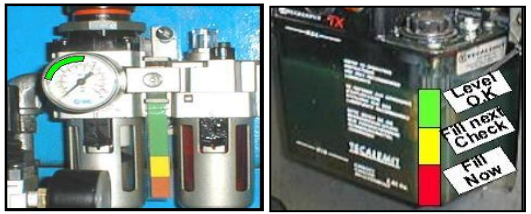
5. Operator self-managed standards and visual controls

Objectives

- Provide and use visual controls so that any minor deviation from normal / optimal conditions are visually detected

Targets

- Review clean/lubricate standards set in Step 3 in light of improved equipment condition
- Identify and eliminate reasons for not meeting time standards
- Apply simple visual controls that reduce the time taken to inspect the equipment

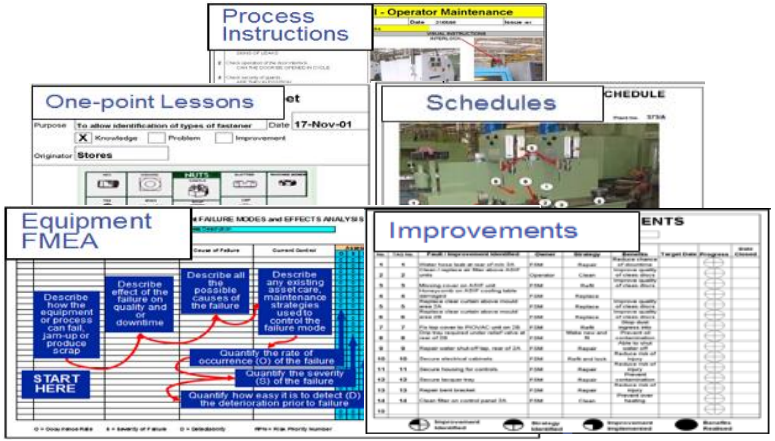


- Visual controls to see
  - Oil level is sufficient in hydraulic tanks
  - Pressure gauges show correct working pressure
  - Airline snap-ins clearly identified
  - Greasing points clearly identified
  - What types of oil and grease to use
  - Status of asset care activities

2. Apply a structured approach to asset care

The Asset Care process

6. Standardise procedures



Objectives

- Abnormalities in the process, equipment and products are determined ‘at a glance’

Targets

- All working practices are standardised and visually documented
- Equipment operating conditions and standards can be seen from a single view-point
- The process prevents the passing of defective product to the subsequent process

- Standard working practices
  - Ensure consistent repeatable operation of the equipment
  - Act as training and reference material
  - Must be continually reviewed

2. Apply a structured approach to asset care

The Asset Care Process

7. Full cell based care routines

Objectives

- Cell based team manage their own equipment care activities, supported technically by maintenance technicians

Targets

- Basic equipment conditions are maintained by following the standards set in Steps 1 - 6
- Process losses are reduced to a minimum
- The cell have all the ‘resources’ they require for complete Asset Care

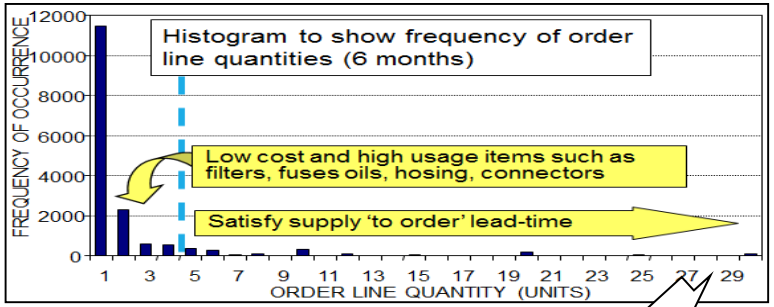
- Full cell based care routines
  - Asset care
  - Visual control
  - Communication
  - FMEA
  - Problem solving
  - Workplace org (5S)
  - Improve OEE

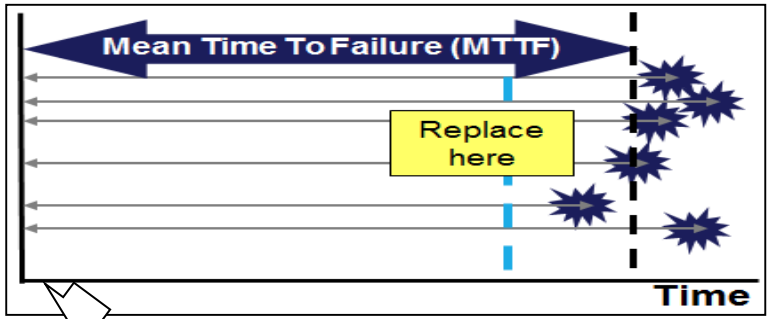
2. Apply a structured approach to asset care

Spares and their management

For the management of equipment spares

- Determine what plant spares to hold in stock to minimise plant downtime and match the selected maintenance strategy
- Minimise cost of holding spares
- Ensure spares are managed visually at cell level





Replacement Frequency	Low Value	Med Value	High Value	Notes
Daily	Store in cell	Identify why failure is occuring		Any parts that require replacing daily or weekly must be investigated (excl. consumables). Design-out the need to replace or improve part life. Set up a visual replenishment system in the cell. Calculate what stock to hold based upon MTTF. Parts failing before suppliers recommended replacement frequencies must be investigated
Weekly	Store in cell	Identify why failure is occuring		
Monthly	Store at cell perimeter	Store at cell perimeter	Bonded / secure store	
> 6 Monthly	Locate in central stores	Locate in central stores	Bonded / secure store	

Gate checklist 2: Apply a structured approach to asset care

BACK Map

- ☑ Immediate actions and strategies have been selected & planned following an equipment condition assessment
- ☑ The 7 steps of asset care are fully understood by operations and support function teams
- ☑ Operators own and complete asset care, maintenance technicians focus on improvement of equipment and skill
- ☑ Spares management analysis and process is in place