Equipment wellness and OEE

8 workplace cases and method lessons / 15 pages. Select a chapter or use PDF bookmarks. Online links open the related lesson.

Equipment wellness and OEE 2
Keep equipment healthy and verify useful performance 3
Read and apply the system / continued 4
Link operator care to specialist response 5
Read and apply the system / continued 6
Use OEE losses to choose and verify useful action 7
Read and apply the system / continued 8
Make Find, Use, Return a dependable routine 9
Replenish from a signal, then verify the reset 10
Make the next-job tool kit obvious 11
Link operator care to maintenance response 12
Separate searching from a ready change kit 13
Read equipment losses without hiding them 14
Supporting lessons and worked methods 15

Equipment wellness and OEE

Equipment wellness starts with the function the equipment must perform and a clear reference for normal condition. Approved operator care can expose leaks, looseness or contamination, but technical intervention remains with competent authorized people. Record the condition and route it to the appropriate response. Planned work should address supported failure mechanisms and include verification of return, not only a completion tick. OEE helps reconcile categories of lost planned time with first-pass good output; it should guide useful investigation rather than encourage excess production. Later checks establish whether the condition is maintained and whether the care or maintenance plan needs revision.

What this system is for

Understand how the methods relate before selecting a detailed lesson.

Use the chapter to

1. Connect basic care, specialist maintenance, loss evidence and verified return to service.
2. Keep condition discovery, authorized intervention and verified return distinct.
3. Relate the three OEE factors to loss evidence, targeted work and useful system outcomes.

A route through the chapter

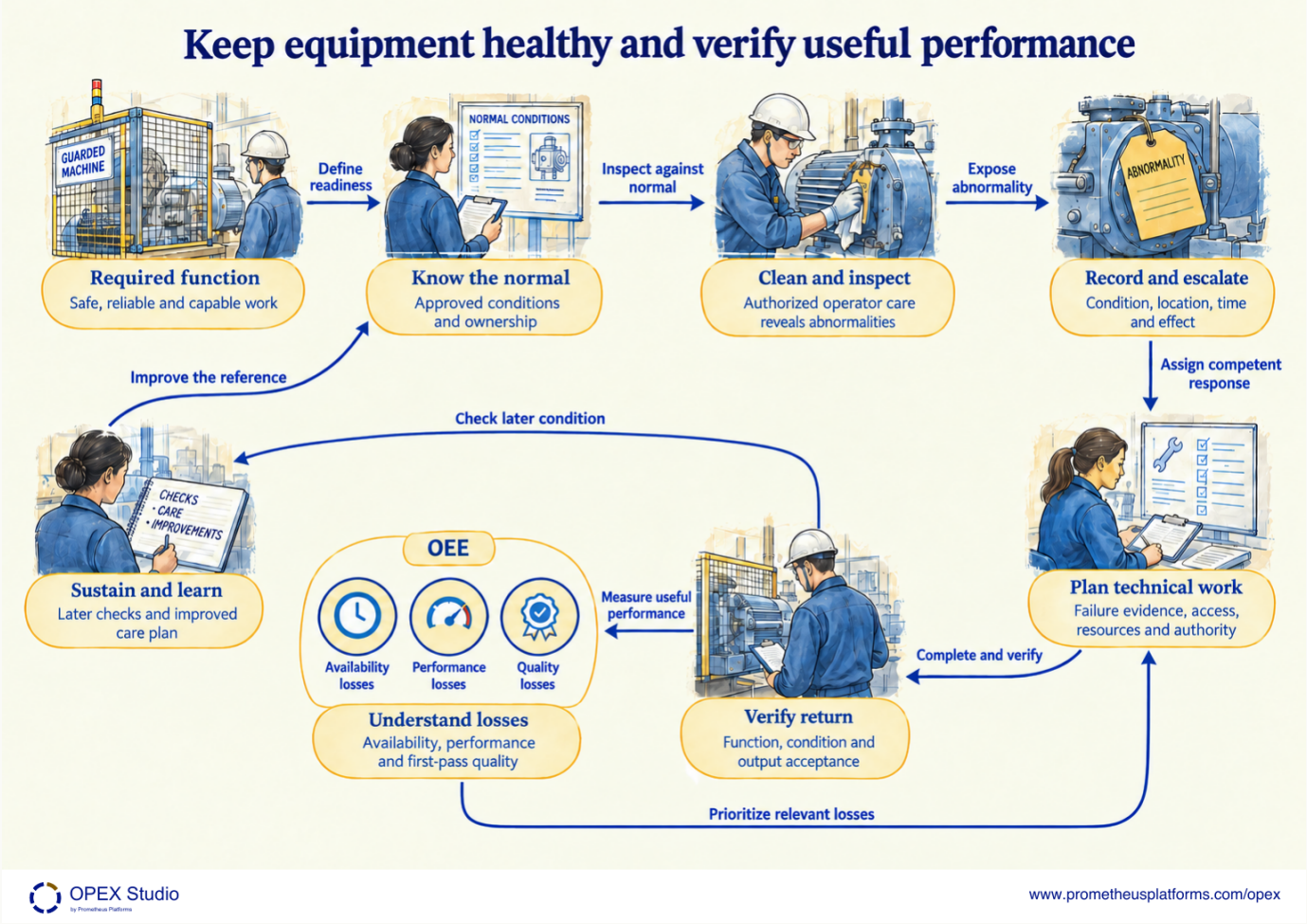
Begin with the three illustrated system maps. Read their connections and decisions, then use the original workplace teaching cards. The supporting lesson index links to the native method packs for worked inputs, practice, reasoned answers and facilitation.

8 mapped cases and method lessons. Illustrations teach the concepts; they are not records of achieved workplace results.

Open this chapter online

Keep equipment healthy and verify useful performance

Connect basic care, specialist maintenance, loss evidence and verified return to service.



GENERATED CONCEPT ILLUSTRATION / FICTIONAL WORKPLACE

Read the connections

Equipment wellness starts with the function the equipment must perform and a clear reference for normal condition. Approved operator care can expose leaks, looseness or contamination, but technical intervention remains with competent authorized people. Record the condition and route it to the appropriate response. Planned work should address supported failure mechanisms and include verification of return, not only a completion tick. OEE helps reconcile categories of lost planned time with first-pass good output; it should guide useful investigation rather than encourage excess production. Later checks establish whether the condition is maintained and whether the care or maintenance plan needs revision.

Check the boundaries

Cleaning is an opportunity to inspect, not proof that a defect has been repaired.

Operator care does not authorize specialist adjustment or bypass of controls.

OEE combines availability, performance and first-pass quality; it is not a universal target or demand measure.

Read and apply the system / continued

Try it / discuss

A machine is clean and the maintenance task is signed off, but the same residue returns on the next shift. Is the issue sustained?

Check your reasoning

No. Record recurrence, retain unresolved status and review the technical response and verification. Appearance and task completion do not establish maintained condition.

Method sources

JIPM: About TPM

JIPM: 2020 Assessment Preparation

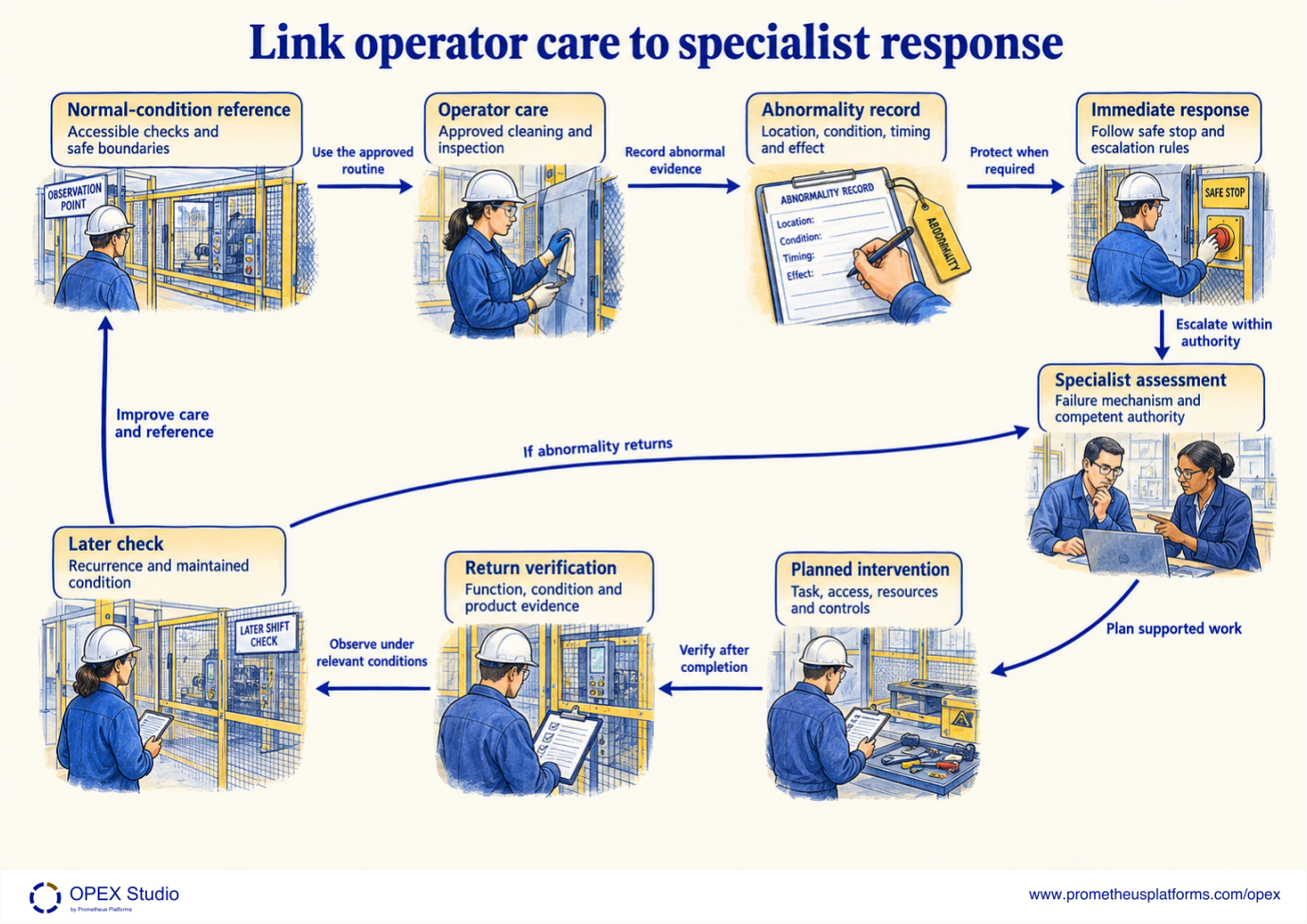
JIPM: 2024 TPM Awards Outline

LEI: Overall Equipment Effectiveness

LEI: 5S

Link operator care to specialist response

Keep condition discovery, authorized intervention and verified return distinct.



GENERATED CONCEPT ILLUSTRATION / FICTIONAL WORKPLACE

Read the connections

An operator's approved cleaning and inspection routine helps discover changes from normal condition. Record what was observed and follow the defined immediate response and escalation boundaries. Discovery does not authorize technical adjustment, guard bypass or unplanned work. A competent specialist assesses the failure evidence and plans the appropriate intervention, access and controls. Return verification should check the required function, the maintained condition and relevant product evidence. Later observation under comparable conditions is needed to distinguish a completed task from sustained improvement. If the abnormality returns, retain it as unresolved and revisit the technical explanation rather than simply adding another cleaning tick.

Check the boundaries

Clean-to-inspect makes abnormalities visible; it is not a substitute for repair.

Operator care and specialist maintenance have different authority boundaries.

A later check must observe relevant operating conditions; a fresh clean photograph is insufficient.

Read and apply the system / continued

Try it / discuss

An operator repeatedly wipes oil from the same external point, and each shift signs the cleaning sheet. What should change in the response?

Check your reasoning

Record the repeated condition, follow local safe response rules and escalate for competent assessment. Keep the recurrence visible and plan verification after an authorized intervention. More signatures do not establish that the leak mechanism is controlled.

Method sources

JIPM: About TPM

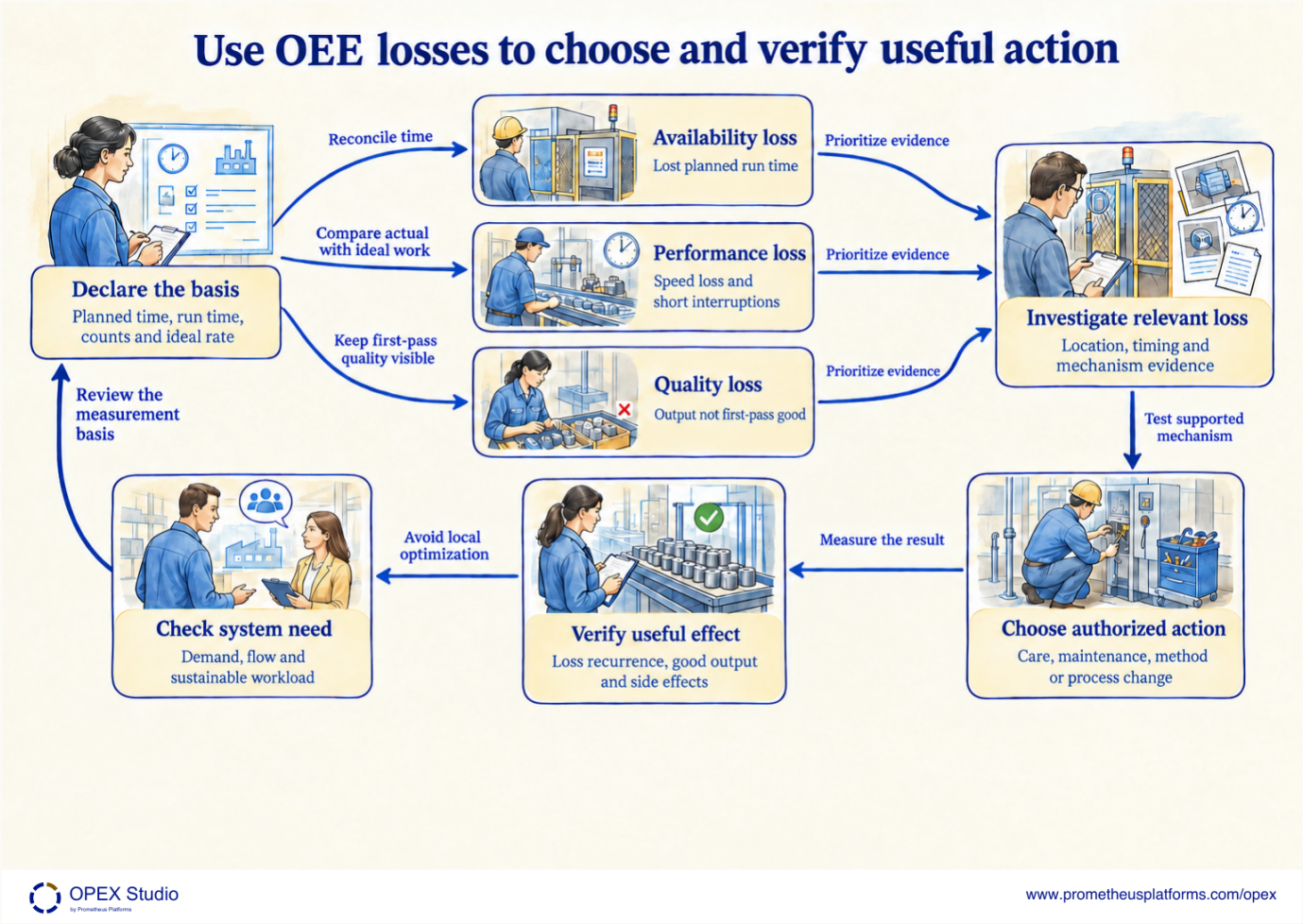
JIPM: 2020 Assessment Preparation

JIPM: 2024 TPM Awards Outline

LEI: 5S

Use OEE losses to choose and verify useful action

Relate the three OEE factors to loss evidence, targeted work and useful system outcomes.



GENERATED CONCEPT ILLUSTRATION / FICTIONAL WORKPLACE

Read the connections

OEE is useful when its measurement basis is clear. Declare planned time, run time, total output, first-pass good output and the ideal rate before calculating the factors. Availability, performance and quality represent different loss lenses and should lead to evidence about where and how loss occurs. The largest category is a starting question, not a proven cause. Choose an authorized intervention supported by the mechanism, then verify recurrence, good output and unintended effects. Finally check the system need: higher local output can create inventory or workload without improving customer delivery. Use the detailed OEE lesson for the exact numerical reconciliation.

Check the boundaries

OEE equals availability multiplied by performance multiplied by first-pass quality.

Keep planned-time and ideal-rate assumptions visible; do not improve the score by silently changing the denominator.

OEE is not a command to produce beyond demand or maximize every machine's utilization.

Read and apply the system / continued

Try it / discuss

A team increases reported OEE by excluding recurring stoppages from planned time while the customer receives no more good output. What should the review question?

Check your reasoning

Check whether the measurement basis changed legitimately and transparently. Reconcile the omitted time, examine actual losses and compare useful good output with customer need. A higher percentage alone is not evidence of operational improvement.

Method sources

LEI: Overall Equipment Effectiveness

JIPM: 2020 Assessment Preparation

JIPM: 2024 TPM Awards Outline

TOCICO: Process of Ongoing Improvement

Make Find, Use, Return a dependable routine

Find it. Use it. Reset it.

GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE

01	02	03	04	05
Sort unnecessary items	Set clear homes	Shine + inspect	Standardize the reset	Sustain checks; safety throughout

The 20 illustrative retrieval times have middle values 124 and 128 seconds: median (124 + 128) / 2 = 126 seconds. The 60-second goal is not a measured result. 8 / 40 stock misses and 3 / 40 wrong selections may overlap; do not add them into an overall defect rate. Sustain evidence remains unknown.

The pantry example starts with a 126-second median retrieval time across 20 tasks and a 60-second goal. A clear home makes an item easier to find; Shine also exposes conditions that need attention. Standardize describes the reset, owner and response. Sustain requires repeated evidence that the routine works across shifts. The proposed after image cannot supply that evidence. Keep stock identity, access and required hygiene controls part of the routine.

TRY IT / DISCUSS

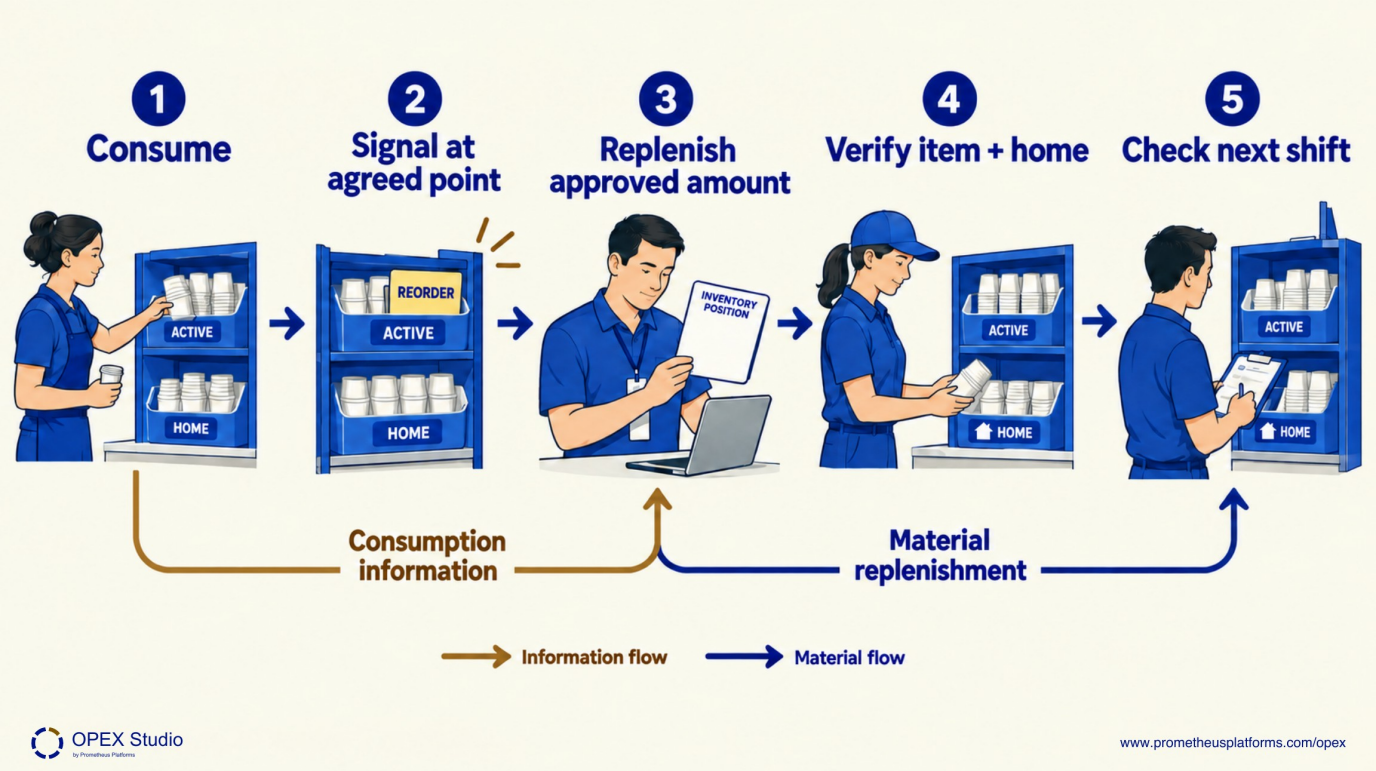
What would distinguish a completed tidy-up from evidence of Sustain?

Check your reasoning: Repeated comparable checks, response to misses and verified follow-through across operating conditions.

METHOD SOURCES / F16: Lean & Environment Toolkit, Chapter 5: 6S | F09: Lean Manufacturing: Don't Leave Home Without It! | F05: Toyota Production System | Q08: Reinforcing Lean Behavior Through Visual Management

Replenish from a signal, then verify the reset

Find it. Use it. Reset it.



GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE

NEW FICTIONAL EXERCISE / CONTINUOUS REVIEW / NO PACK CONSTRAINT

34 usable + 6 on-order - 0 backlog = 40 position

Minimum 40 | Target maximum 70 | New order 30

Pending stock is already counted. Refill identity and local sizing still need verification.

A replenishment rule connects use to action. In this separate fictional exercise, the agreed minimum is 40 units and target maximum 70. Inventory position is 34 usable on-hand plus 6 already on-order, with no backlog:40. At the trigger, order 30 additional units to restore position to 70; do not order the pending six twice. These are teaching settings, not measured pantry stock needs. Real settings require item, demand, lead time, pack size and uncertainty definitions. Exclude unusable stock, then verify refill identity and the next reset.

TRY IT / DISCUSS

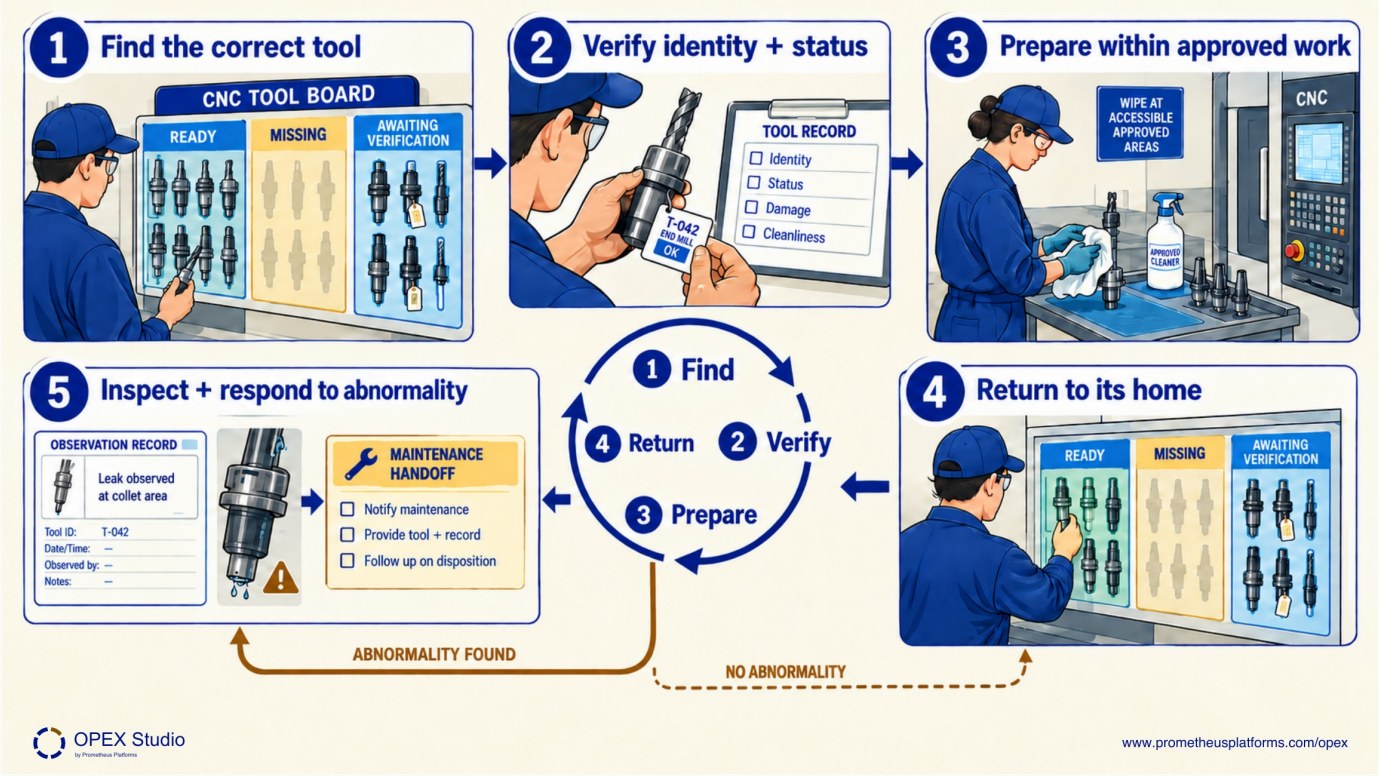
Can a tidy shelf photograph establish the right replenishment minimum?

Check your reasoning: No. Demand, replenishment timing, usable inventory and local constraints are needed.

METHOD SOURCES / F16: Lean & Environment Toolkit, Chapter 5: 6S | F09: Lean Manufacturing: Don't Leave Home Without It! | F05: Toyota Production System | Q08: Reinforcing Lean Behavior Through Visual Management

Make the next-job tool kit obvious

A tool room ready for the next job



GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE

01	02	03	04	05
Find the correct tool	Verify identity + status	Prepare within approved work	Return to its home	Inspect + respond to abnormality

Retained tool-search sample: 12 observations, median 6.5 minutes; proposed goal 2 minutes. Start when the next-job tool list opens and finish when the complete correct set reaches presetting.

Clear homes reduce searching only when the correct tool and its status remain clear. The retained twelve observations have a 6.5-minute median search time and a 2-minute goal. Separate ready tools from those awaiting verification. Cleaning accessible areas can reveal recurring residue; record the condition and route it to the responsible person. Do not return a suspect tool to use merely because its storage position is tidy.

TRY IT / DISCUSS

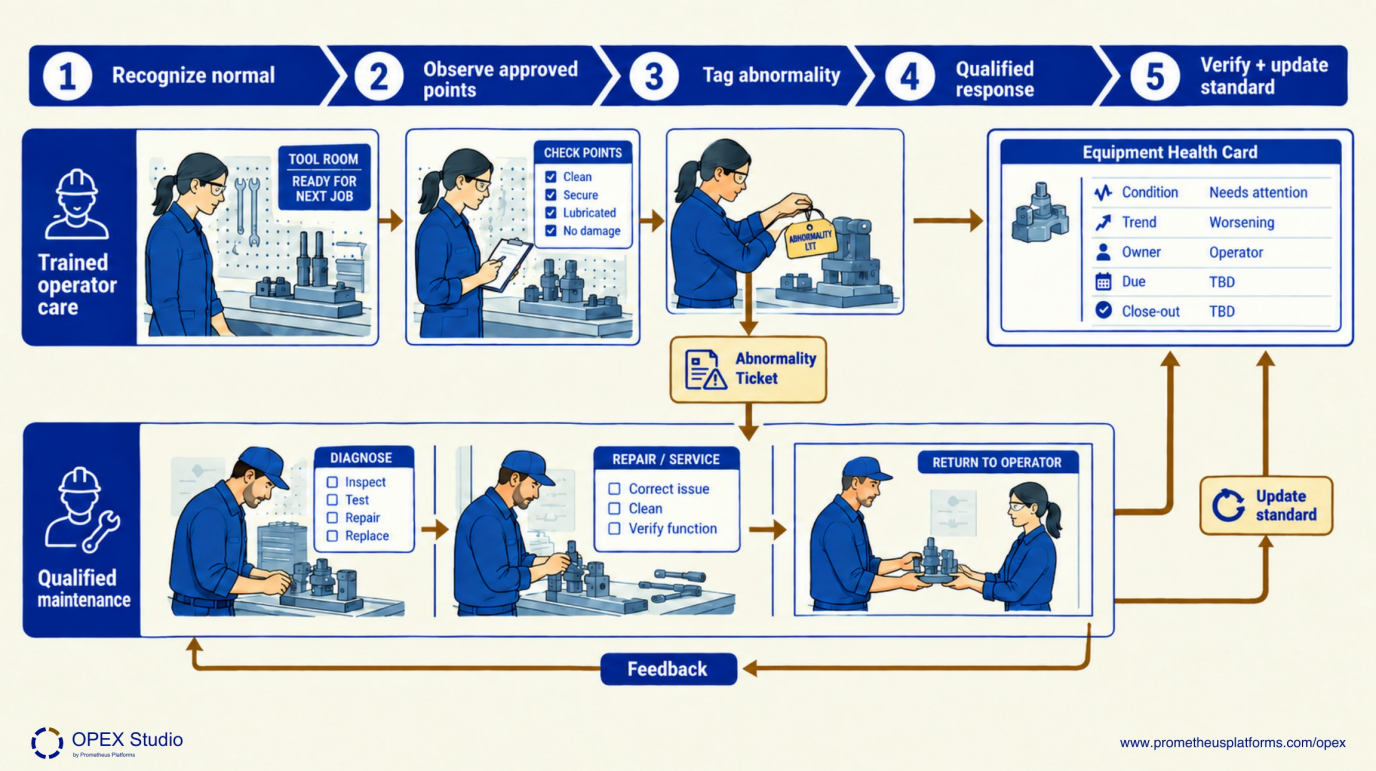
Where should a tool go if its identity is known but its verification status is uncertain?

Check your reasoning: The defined hold or awaiting-verification route, with an owner, rather than the ready-tool home.

METHOD SOURCES / F01: Total Productive Maintenance | F02: 2023 TPM Award Outline, autonomous maintenance example | F03: Asset Condition Management: A Framework for Smart,... | S04: OSHA: Control of Hazardous Energy

Link operator care to maintenance response

A tool room ready for the next job



GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE

Point / condition	Trend / abnormality	Owner / due	Verified close-out

A useful condition record includes the asset, observed condition, trend, owner, due date, response and comparable recurrence check. This is not a calculated equipment-health score.

Introduce TPM as coordinated equipment care and loss prevention, not simply a cleaning rota. Operators perform only trained, authorized checks; qualified maintenance owns work outside that boundary. Define what normal looks like, record an abnormal condition and verify the response under the approved procedure. The photo and 6S rubric cannot establish reliability, lubrication adequacy or technical equipment condition. Use the existing search-time data separately from any new equipment-health measures.

TRY IT / DISCUSS

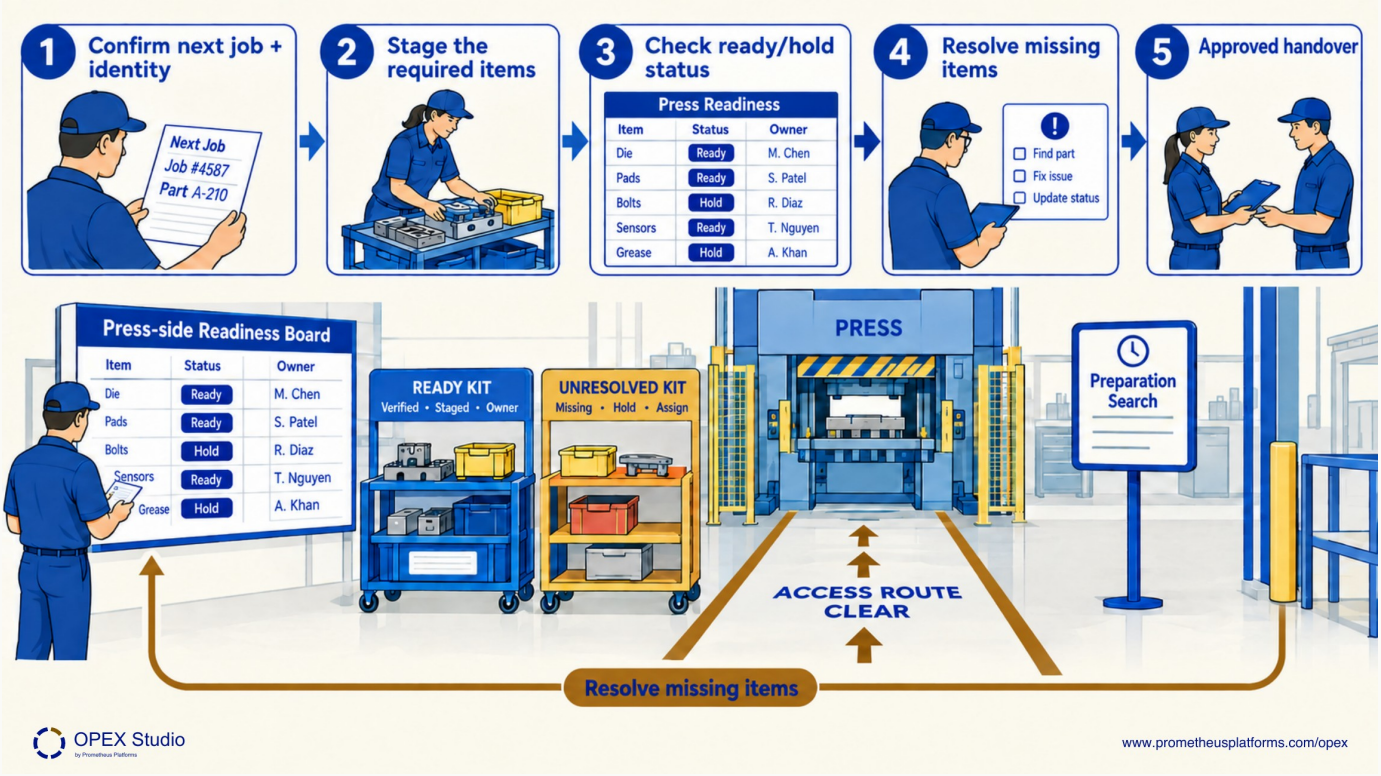
What evidence would show the residue problem was addressed beyond wiping it up?

Check your reasoning: An authorized response to its source and a comparable recurrence check, with conditions and observation window recorded.

METHOD SOURCES / F01: Total Productive Maintenance | F02: 2023 TPM Award Outline, autonomous maintenance example | F03: Asset Condition Management: A Framework for Smart,... | S04: OSHA: Control of Hazardous Energy

Separate searching from a ready change kit

Give the press area a clear reset



GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE

01	02	03	04	05
Confirm next job + identity	Stage the required items	Check ready/hold status	Resolve missing items	Approved handover

Retained preparation-search sample: 10 observations, median 9 minutes; proposed goal 4 minutes. It measures approved-list opening to verified-item readiness in the authorized staging area.

The existing measure is preparation search: ten observations, 9-minute median, 4-minute goal. Make required die-change equipment and identities visible before the authorized handover. Record missing or unverified items and assign a response. The organization trial does not change press settings or prove a faster technical changeover. Keep the boundary between external preparation and work requiring a controlled machine state explicit.

TRY IT / DISCUSS

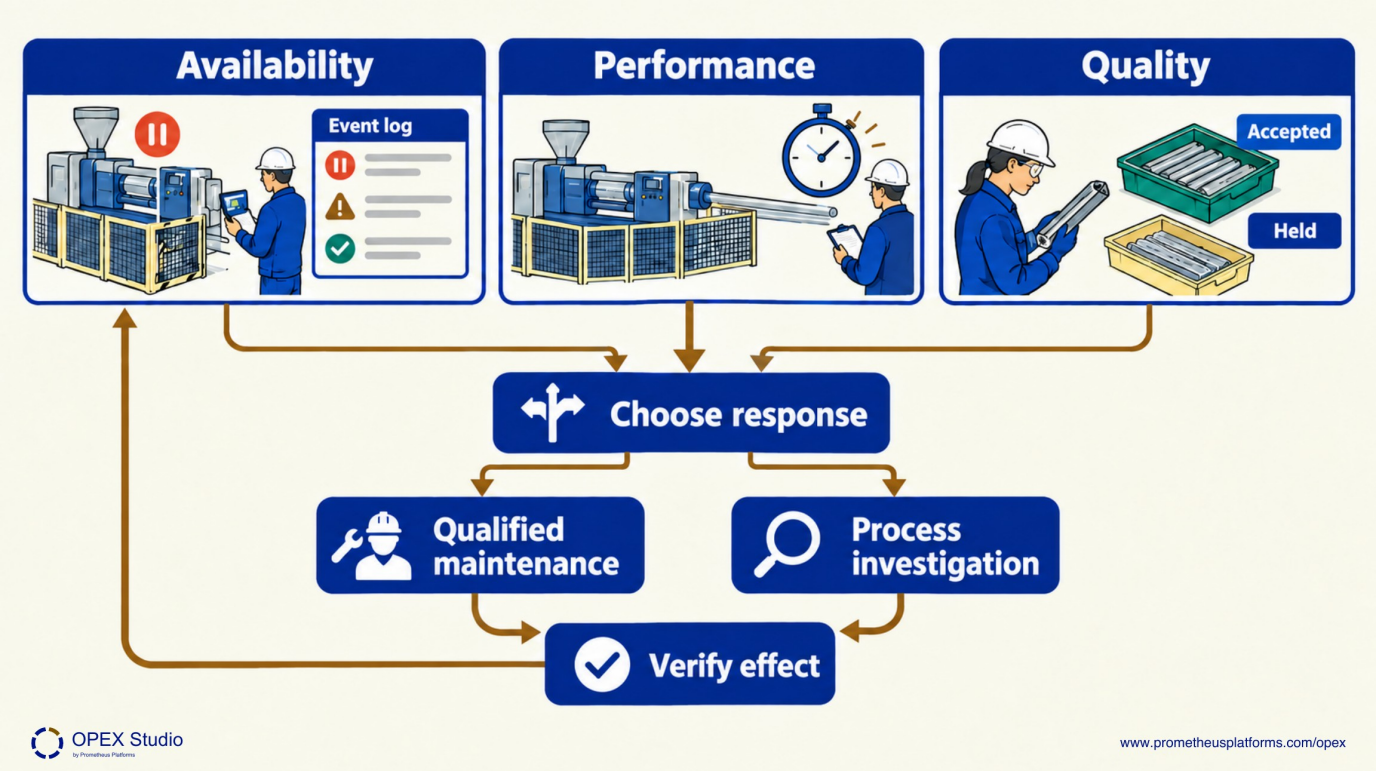
Does meeting the 4-minute search goal prove a 4-minute changeover?

Check your reasoning: No. Search is only one component; technical changeover has a different start/finish and controls.

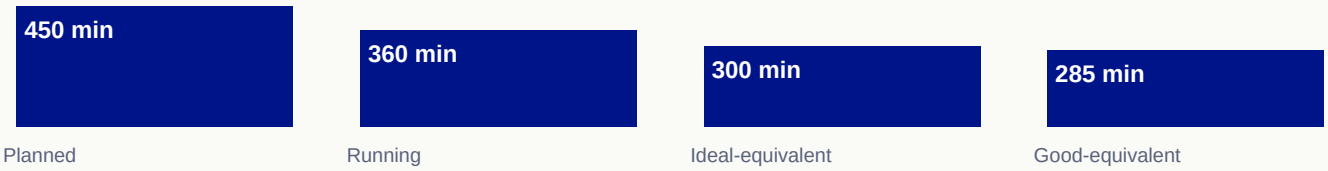
METHOD SOURCES / F01: Total Productive Maintenance | F03: Asset Condition Management: A Framework for Smart,... | F04: OEE Implementation Guide | F15: Research Suggests Significant Benefits to Investing... | F18: Quality Glossary: Overall Equipment Effectiveness

Read equipment losses without hiding them

Give the press area a clear reset



GENERATED TEACHING ILLUSTRATION / FICTIONAL WORKPLACE



NEW FICTIONAL EXERCISE: A 80% x P 83.33% x Q 95% = OEE 63.33%

New fictional OEE exercise: 450 planned production minutes, 360 running minutes, ideal cycle 0.5 minutes/unit, 600 total units and 570 first-pass good units. Equivalent-time waterfall: 450 > 360 > 300 > 285 minutes. Losses: 90 downtime, 60 speed and 15 quality minutes. These are time equivalents, not three independent stopwatch readings.

OEE combines availability, performance and quality within a declared boundary. In the new teaching exercise, A=360/450, P=(600 x 0.5)/360 and Q=570/600; OEE=63.33%. This is not the press case's measured OEE. Inspect the loss components before choosing a response. A high OEE alone does not prove customer flow, safety or equipment health, and changing the denominator does not remove a loss.

TRY IT / DISCUSS

If the team removes planned downtime from the denominator after the event, is that improvement?

Check your reasoning: No. Definitions must remain consistent; investigate the underlying loss and report boundary changes transparently.

METHOD SOURCES / F01: Total Productive Maintenance | F03: Asset Condition Management: A Framework for Smart,... | F04: OEE Implementation Guide | F15: Research Suggests Significant Benefits to Investing... | F18: Quality Glossary: Overall Equipment Effectiveness

Supporting lessons and worked methods

Choose a lesson to inspect a worked example, practise a changed case, check the reasoning or plan a facilitated session.

Shine and sustain: evidence over time

Operator care and specialist maintenance

Planned maintenance: criticality to verified return

OEE loss waterfall with denominator discipline

Quality maintenance: control conditions, not just inspect output

Find it. Use it. Reset it.

A tool room ready for the next job

Give the press area a clear reset

Open the complete learning library