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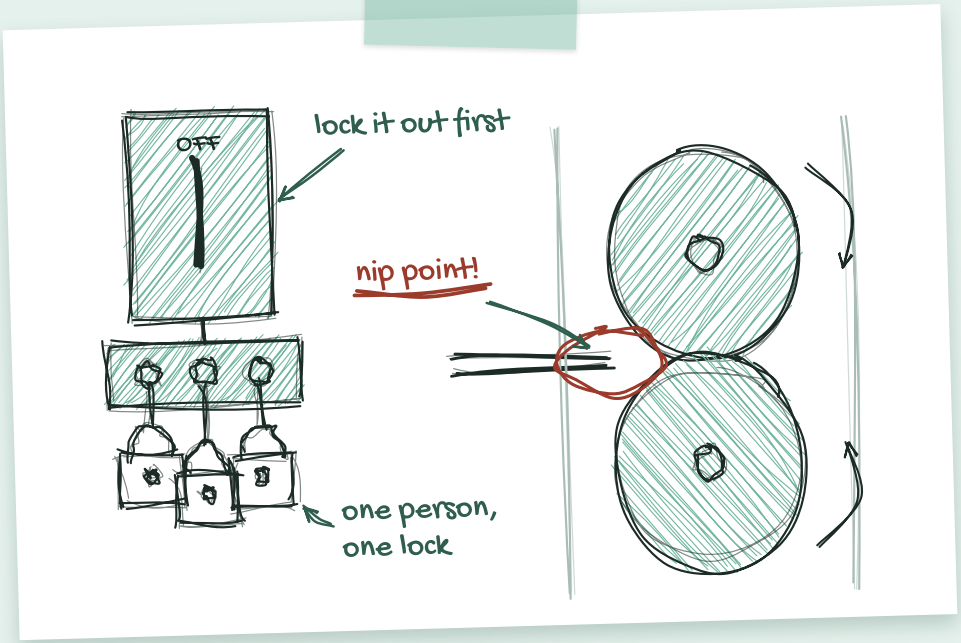
Field guide 13



Machinery, plant and energy isolation

Guarding moving parts, locking out energy before anyone reaches in, and buying plant that is safe from the start.

For middle managers and senior leaders in Aotearoa New Zealand

Health and safety field guide 13
Edition 2.3
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A second's work

In April 2023, a worker at a Christchurch bakery was cleaning and maintaining a machine. Nobody had locked it out, with a lock on its isolation point so nobody could restart it.

A co-worker started the machine. The worker's hand was pulled into the rollers. He lost his index finger and part of his thumb.

The bakery had lockout tags, but workers had never seen them used. Its risk assessments missed the crushing risk inside the machine, where people cleaned. WorkSafe said: "A tick-box risk assessment is worse than useless because it creates a false sense of security."

What the story shows

Nothing here needed bad intent. It needed a missing lock and an assessment that looked in the wrong place. Both are things a manager can see and fix.

Why this guide starts here

WorkSafe says "machinery is a major cause of injury and death in New Zealand workplaces". Many of those injuries happen when a machine is not doing its normal job. It is being cleaned, cleared or repaired, and the guards are off.

This guide is about those moments. Page 12 tells the rest of the bakery story, and what the court decided.

Stopping a machine costs minutes. This worker lost his fingers in seconds.

Sources WorkSafe media release, Three critical safety failures that led to worker losing fingers (February 2026); WorkSafe, Safe use of machinery good practice guidelines.

About this guide

Who it is for

Senior leaders who buy plant, set production targets and decide whether to fund guarding.

Middle managers who run production, plan maintenance and decide whether a machine runs or stops.

How to use it

Read pages 2 to 8 at your own pace. Then take the walk on page 14 and the pocket card on page 20 onto the floor. Write what you find on page 19. Key words are explained on page 21.

Field guide 7 covers vehicles and mobile plant. This guide covers fixed and portable machinery. Field guide 1 explains the ideas behind the series.

Finding your way

Before you start	2
The duty	4
Spotting the hazards	7
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Questions and notes	18
Key words and sources	21

Reading these pages

A taped card with footprints: something to try at work

A small compass: the sentence or point after it is this guide's view

A pink box with a red edge: what changes from 1 April 2027

The foot strip: sources. Untinted tables, sketches and checklists are this guide's own



A hatched edge with a compass: this guide's own view

A tinted box: the law, WorkSafe guidance or court facts

A dark box: this guide's lessons from a court case

Priority dots (this guide's rating): one means watch, three means act today

In this guide, "the Act" means the Health and Safety at Work Act 2015, "s" means section and "ss" means sections. "The 1995 Regulations" means the Health and Safety in Employment Regulations 1995, parts of which are still in force. A PCBU is a "person conducting a business or undertaking", usually an organisation. This guide gives general information. It is not legal advice. Written to the plain language standard in the Plain Language Act 2022 (s 5).

What the law asks

You must keep workers safe so far as is reasonably practicable (what you can reasonably do, once you weigh up the risk, what you know, and the controls that exist, s 22). For machinery, that means safe plant (any machinery, vehicle, vessel, aircraft or equipment, s 16), safe ways of working, and trained people.

Rule	What it asks of you
The main duty **ss 30, 36**	Remove the risk if you can. If you can't, reduce it. This includes providing and maintaining "safe plant and structures" (s 36(3)(b)).
Order of controls **GRWM Regulations, reg 6**	Remove the risk first. Then substitute, isolate or engineer it out. Rules and protective equipment come last.
Training **GRWM Regulations, reg 9**	Train and supervise workers who use plant of any kind.
Lockout **1995 Regulations, reg 17**	Before cleaning, maintaining or repairing machinery, secure every part against movement. Keep every control "in the inoperative position by the use of locks or lock-out procedures or other equally effective means".
Woodworking and grinding **1995 Regulations, reg 18**	These machines must have the protective devices the regulations set out.

When a part must keep moving

Sometimes a part must move during maintenance. Then reg 17 asks for a safe procedure, and only trained people may do the work. Only that part may be set in motion. Page 11 shows what this looks like for a jam.

Sources the Act, ss 30, 36; Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (GRWM Regulations), regs 6, 9; Health and Safety in Employment Regulations 1995, regs 17, 18.

Machinery in the new law

The Health and Safety at Work Amendment Act 2026 became law on 9 July 2026, and it starts on 1 April 2027.

Machinery work becomes a listed critical risk

New Schedule 1A lists "cleaning, maintenance, or repair of machinery", "use of woodworking and abrasive grinding machinery" and "use of self-propelled mobile mechanical plant". It also lists pressure equipment, cranes, passenger ropeways and amusement devices.

Children near machines

Schedule 1A also lists children under 15 "working at or with any machinery or assisting with such work".

If you have fewer than 20 workers

You count as a small PCBU. If numbers go up and down, you count if you expect fewer than 20 in at least 9 months of the financial year (new s 17(3) to (5)). From 2027, ss 36 to 43 apply to you only for critical risks. Machinery cleaning and repair is one, so guarding, lockout and welfare facilities apply in full. Notifying WorkSafe (s 56) and involving workers (ss 58 to 61) still apply, critical risks first (new s 25A).

Getting ready for the change

- [ ] List every machine people clean, clear or repair, and how often.
- [ ] For each one, write down what stops a hand reaching a moving part.
- [ ] Ask whether that control would still work at 3 am on a busy night.

Almost any machine that can trap, crush or cut will also meet the general test in new s 22A.

Sources Health and Safety at Work Amendment Act 2026 (new ss 17(3) to (5), 22A, 25A, Schedule 1A); the Act, ss 36, 56, 58 to 61; WorkSafe, Understanding the changes (July 2026); Am I a small or large PCBU? (September 2026).

Safe from the start

The law also puts duties on everyone who designs, makes, imports, supplies or installs plant. People call these upstream duties.

Who	Their duty, so far as is reasonably practicable
Designer s 39	Design plant without risks to the people who use, clean, maintain, repair or dismantle it. Test it, and give information for safe use.
Manufacturer s 40	Make it without those risks.
Importer s 41	Make sure imported plant is without those risks.
Supplier s 42	Make sure plant they supply is without those risks.
Installer s 43	Install, build or commission it without risks.

Questions to ask before you buy

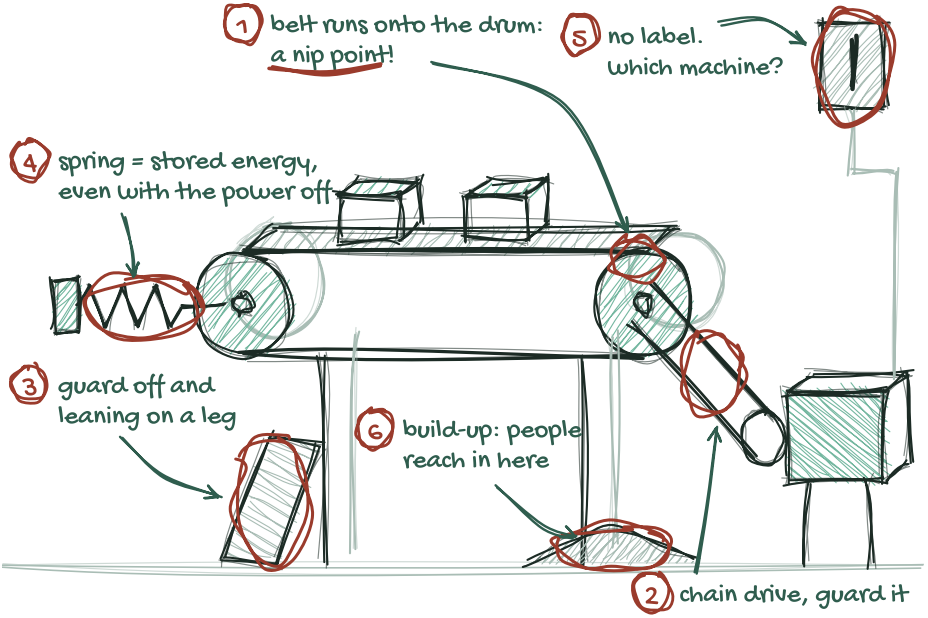
The cheapest time to fix a guarding problem is before the machine arrives.

- [ ] How is it cleaned? Can we clean it without taking guards off?
- [ ] How are jams cleared, and where does a hand go?
- [ ] Where is every energy source, and where are the isolation points?
- [ ] Can each worker fit their own lock?
- [ ] What safety information comes with it, as the law requires?

Sources the Act, ss 39 to 43.

What to look for

Many machines share the same danger spots. Learn them on one machine and you will see them on others.



WorkSafe lists the ways moving parts hurt people. They include "drawing in or trapping", crushing, shearing, cutting and entanglement.

The numbers match the table on the next page. The same six checks work on a mixer, a press or a saw.

Sources WorkSafe, Safe use of machinery good practice guidelines, s 4.3.

Six things to spot

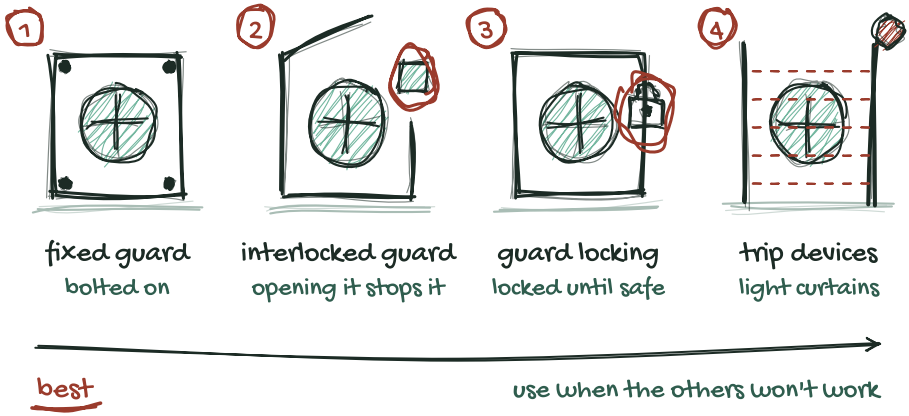
	What it looks like	Why it matters, and what to do	Priority
1	A belt, chain or roller running onto a drum or another roller.	A nip point. It draws in a glove or sleeve faster than anyone can pull back. Make sure a fixed guard covers it.	●●●
2	A drive chain, belt, coupling or shaft you can reach.	Rotating parts catch clothing and hair. Guard every drive, even the slow ones.	●●●
3	A guard leaning against the wall or a leg, or propped open.	The guard is off and the machine runs without it. Stop the machine, refit the guard, then ask why it came off.	●●●
4	A spring, air cylinder, hydraulic ram, flywheel or raised part.	Stored energy. It can move a part after the power is off. Check the lockout steps say how to release it.	●●○
5	An isolator with no label, or several that look the same.	People isolate the wrong machine. Label every isolator with the machine it controls.	●●○
6	Spills, build-up or scraping tools near moving parts.	This is where people reach in to clean. Ask how it is cleaned, and watch someone do it.	●●○

Try it this week

Stand next to one machine for five minutes with this page. Find all six. Then ask the operator which one they would fix first. They often know a seventh.

Guarding, best first

WorkSafe's machinery guidelines set out guarding options "in order of preference". Start at the left and move right only when you must.



Watch out for

- Light curtains "may not protect the operator in all circumstances". A single beam is "not normally suitable".
- "Emergency stops should NOT be used to lock-out the machine." A stop button is not isolation.
- Fit removable guards so "a tool is needed to remove and replace it".
- Guards taken off for cleaning or clearing blockages, and not put back.

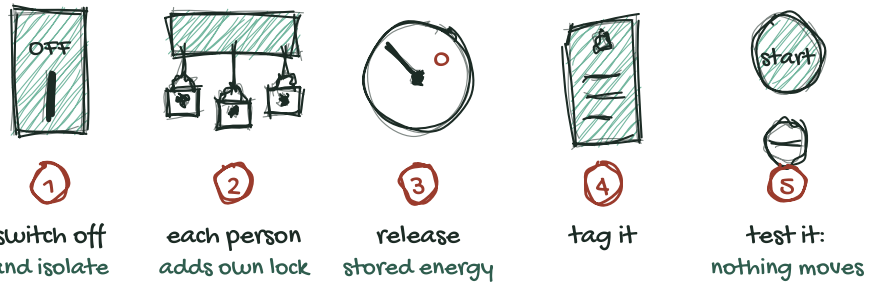
Guards on the farm

WorkSafe says: "Guards are the last line of defence between a worker and a rotating shaft." Power take-off shafts, which drive farm machinery from a tractor, need guards every time.

Sources WorkSafe, Safe use of machinery good practice guidelines, ss 7.1, 8.1, 8.2, 10.1, 10.7; media release, Unguarded farm machinery can change lives in seconds (26 August 2026).

Lockout in five steps

Cleaning, clearing jams and maintenance are when guards come off and people reach in. This is when lockout matters.



#	WorkSafe's steps
1	"Identify and de-energise the lockout point for each energy source."
2	"Each worker should attach their personal lock to the lockout point for each energy source."
3	"Release (de-energise) all stored energy within the machinery."
4	Tag the machine and its controls.
5	"Test the lockout to make sure it works." "Press all start buttons (the machinery should not start)."

One person, one lock

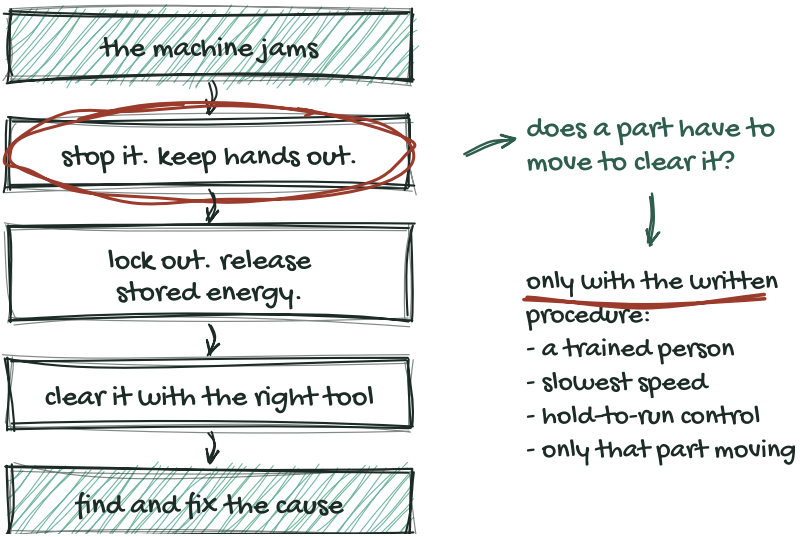
WorkSafe says anyone working in a hazardous area "should have a lock-out device that identifies who is protected by the device".

A shared padlock protects nobody in particular.

Sources WorkSafe, Keeping workers safe when servicing machinery (January 2021); Safe use of machinery, ss 9.2, 9.3.

Clearing a jam safely

A jam is the moment people are most likely to reach in. The line has stopped, and everyone wants it running again.



WorkSafe says machinery must be isolated "before any inspection, repair, maintenance, alterations, cleaning or withdrawal happens". Its checklist asks whether there is a way to shut down the machine "if something out of the ordinary happens, like a blockage".

If a dangerous part must move while a guard is open, WorkSafe suggests "speed as slow as practical, and two-hand hold-to-run inching controls with pendant". Hand tools should be "the right length, type and size to keep an operator's hands out of the machine".

The jam you see every day

A jam that happens every shift is a design problem, not a people problem. Count the jams for a week. Then fix the cause, or the fix will be someone's hand.

Sources WorkSafe, Safe use of machinery good practice guidelines, ss 4.1, 4.8, 9.2; the 1995 Regulations, reg 17(2).

The bakery: what the court found

Page 2 told what happened at the bakery in April 2023. WorkSafe's investigation found three failures.



April 2023
A worker cleans a machine that is not locked out.

Then
A co-worker starts it. The worker's hand is pulled into the rollers.

Then
WorkSafe finds three failures.

24 February 2026
The court fines the company $200,000.

Failure	What it looked like
No lockout	The machine was not locked out while the worker cleaned and maintained it. A co-worker could start it.
Risk assessments missed the danger	The assessments missed the crushing risk from the rollers inside the machine.
Gaps in training	Workers had never seen the lockout tags used.

The sentence

In February 2026 the Christchurch District Court fined the company $200,000. It also ordered $45,500 reparation to the worker. The charge was under ss 36(1)(a) and 48.

The lesson for leaders

Paper is not lockout. The bakery had documents and tags. What it lacked was a habit people had seen and practised.

Sources WorkSafe media release, Three critical safety failures that led to worker losing fingers (February 2026); the Act, ss 36, 48.

The farm: rules on paper

In January 2025, a worker on a Wairarapa dairy farm was running a tractor connected to a feed mixer.

His clothing caught in the power take-off shaft. It had no guard. He lost an arm and suffered other serious injuries.

The farm knew the risk. Its risk register recognised the high risk of entanglement. Its safety system said power take-off shafts must always be guarded, with no exceptions. But nobody monitored the pre-start checks that should have caught the missing guard.

The sentence

Shady Farming Limited pleaded guilty to one charge under the Act. The court fined it $60,000 and ordered about $96,000 reparation. WorkSafe reported the sentence on 26 August 2026.

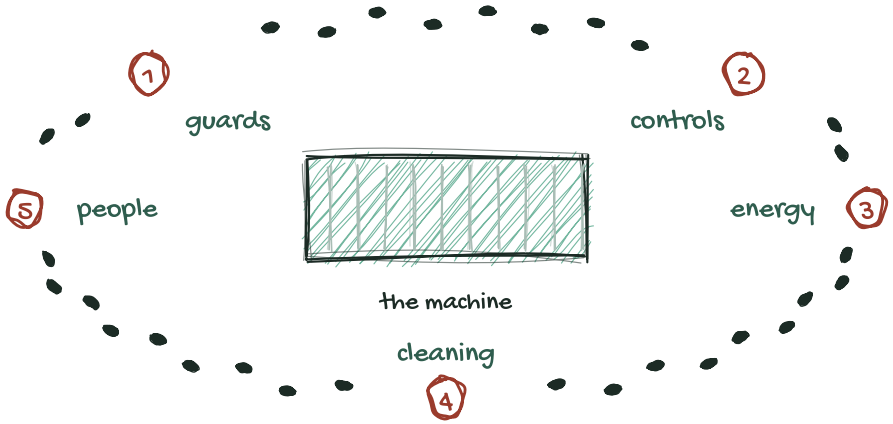
> "*This incident shows that having rules on paper is not enough.*"
> **Nigel Formosa, WorkSafe**

> "*No job on the farm is so urgent that it justifies taking risks around moving machinery.*"
> **WorkSafe**

Sources WorkSafe media release, Unguarded farm machinery can change lives in seconds (26 August 2026).

Walk the machine

Both cases had rules on paper. Neither had checked them on the floor. Set aside 20 minutes and walk round one machine with the person who runs it.



1. **Guards.** Where can a hand, sleeve or hair reach a moving part? Is every guard on and fixed?
2. **Controls.** Which isolator controls this machine? Is it labelled? Can you lock it?
3. **Energy.** Where is every energy source, including springs, air, hydraulics and raised parts?
4. **Cleaning.** How is the machine cleaned, and how are jams cleared? Ask someone to show you.
5. **People.** Does everyone who cleans or repairs it have their own lock? When did they last test that lockout works?

Walk with the operator

Ask them to walk you round, not the other way. Ask what slows them down. The answer usually points to where guards come off.

When the work changes

The same machine needs a different approach depending on what is happening. Field guide 1 explains why.

What is happening	How to manage it	Priority
Normal running Clear	Check guards and interlocks (switches that stop the machine when someone opens a guard) each shift. Use the agreed method.	●○○
A new or changed machine Complicated	Get a competent person to design the guarding and isolation. Write lockout steps for that machine.	●●○
A jam or breakdown under pressure Complex	Lock out first. Diagnose second. Back people who stop to ask.	●●●
Someone caught in a machine Chaotic	Stop the machine. Isolate it. Call 111 and give first aid. Then report and keep the site as it is (field guide 5).	Act now
Nobody knows which isolator is which Confusion	Stop. Label the isolators. Name one person to own the lockout procedure.	●●○

Clear to Complex, then Chaotic: "it's just a quick clean"

A routine task turns into improvising when something sticks. That is when hands end up near parts that still have power. If a hand is caught, it is Chaotic in a second.

Clear to Complicated: the quiet modification

Someone speeds up, moves or changes a machine. The old guards and lockout steps no longer fit.

Sources The situation names in colour come from the Cynefin framework (Snowden and Boone, 2007, who called Clear "Simple" and Confusion "Disorder"; current names from Snowden and Friends, 2021).

Signs worth a closer look

Most of these signs are visible on a walk through the floor.

What you might see or hear	What to do	Priority
Guards propped open, bypassed or missing.	Stop the machine. Refit the guard. Ask why it was removed.	●●●
Tape or a cable tie on an interlock switch.	The interlock has been bypassed. Find out what the interlock was getting in the way of.	●●●
Frequent jams. A stick or bar kept by the machine.	Fix the cause of the jams. Check people use lockout to clear them.	●●○
"We just hit the stop button."	A stop button is not lockout. Show the five steps on page 10.	●●○
Lockout locks hanging unused, or one shared padlock.	Issue personal locks. Ask what makes lockout hard. Check they are used.	●●○
A machine sped up, moved or changed.	Re-check the guarding and the lockout steps.	●●○

The lock test

Ask a maintenance worker to show you their personal lock. Then ask how they would isolate the nearest machine. Watch, don't tell.

Running the shift

It is 2 pm, the order is late, and the line has jammed for the third time. What you say next tells everyone what matters here.

Before work starts

- [ ] Check guards and interlocks are in place and working.
- [ ] Make sure everyone who cleans or maintains has their own lock.
- [ ] Check new workers are trained on each machine they use.

While work is happening

- [ ] Never let anyone reach into a running machine.
- [ ] Back people who stop the line to clear a jam safely.
- [ ] Watch for loose clothing, hair and gloves near moving parts.

Afterwards

- [ ] Report near misses and bypassed guards.
- [ ] Fix the cause of repeated jams.
- [ ] Tell your manager about any guarding problem you can't fix without more money.

What to say at the jam

"Lock it out first. I'd rather lose ten minutes than a hand." Say it out loud, every time, and people will start saying it for you.

Take these to your next meeting

Senior leaders and officers

- [ ] Which machines could trap, crush or cut someone?
- [ ] Do we check guarding before we buy new plant?
- [ ] Do production targets leave time to stop and lock out?
- [ ] Does every worker who maintains plant have a personal lock?
- [ ] How often are guards found bypassed?
- [ ] Are guarding upgrades funded?
- [ ] Is machinery cleaning and repair on our critical risk list?
- [ ] As an officer, how do I check for myself that lockout is provided and used when jams are cleared? (s **44**)

Middle managers

- [ ] Is every guard on and working today?
- [ ] Who cleans each machine, and how?
- [ ] Is anything making it hard to lock out before clearing a jam?
- [ ] Are all isolators labelled?
- [ ] Has any machine been changed recently?
- [ ] Is anyone new on the machines?
- [ ] Do people know they can stop the line?

Two measures a board can track: jams cleared this month without lockout; guards found bypassed or missing on walks.

When did someone last stop a machine to lock it out, and what did we say to them?

Notes

Field notes

Back of your pocket card

My critical risks here:	Who to call:

ideas for this page:

- what you saw on your walk
- what the operator told you
- questions for your next meeting
- jams this week, and why
- a guard to fix, and who owns it

→ write it down here

Pocket card

Cut out and fold in half.

Lockout: five steps

1. Switch off and isolate every energy source.
2. Each person adds their own lock.
3. Release stored energy.
4. Tag the machine and controls.
5. Test it. Press start. Nothing moves.

A stop button is not lockout.

At a jam

1. Stop it. Keep hands out.
2. Lock out. Release stored energy.
3. Clear it with the right tool.
4. Fix the cause.

Must a part move? Only with the written procedure, slowest speed, hold-to-run.

Card text from WorkSafe's lockout steps and Safe use of machinery guidelines (pages 10 and 11). Field guide 13, Vimes Consulting.

Key words

The words people use around machines, in plain English.

Word	What it means
Plant	The law says plant includes "any machinery, vehicle, vessel, aircraft, equipment". s 16
PCBU	A "person conducting a business or undertaking". Usually an organisation.
Reasonably practicable	What you can reasonably do, once you weigh up the risk, what you know, and the controls that exist. Cost is weighed last. It can rule a step out only if it is grossly disproportionate to the risk. s 22
Guard	A barrier that keeps hands, hair and clothing away from moving parts.
Interlock	A switch that stops the machine when someone opens a guard.
Isolate	Cut the machine off from every energy source, not just switch it off.
Lockout	Each person puts their own lock on the isolation point. Nobody can restart the machine until every lock is off.
Stored energy	Energy left after you switch off. Springs, hydraulics, compressed air, flywheels and raised parts all hold it.
Nip point	Where two parts turn or move together and can draw in a hand. WorkSafe calls this "drawing in or trapping".
Power take-off (PTO)	The spinning shaft that drives farm machinery from a tractor.
Critical risk	From 1 April 2027, a risk the law lists, or one likely to cause death or serious harm. Machinery cleaning and repair is listed. new s 22A

Sources the Act, ss 16, 22; WorkSafe, Safe use of machinery, s 4.3; the Health and Safety at Work Amendment Act 2026, new s 22A.

See also Field guide 6 explains critical risk in full.

Check it yourself

How this guide was checked

Every statement of law or fact in this guide was checked against a primary source before printing: the Act, the regulations, the Amendment Act 2026 as passed, WorkSafe guidance, or WorkSafe's case reports. Each check is recorded in a claims register, with the source and date checked. Statements that could not be checked were removed. Facts checked on 12, 22, 23 and 24 October 2026.

Law

1. Health and Safety at Work Act 2015, ss 16, 22, 30, 36, 39 to 44, 48, 56, 58 to 61. legislation.govt.nz
2. Health and Safety in Employment Regulations 1995, regs 17, 18.
3. Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, regs 6, 9.
4. Health and Safety at Work Amendment Act 2026 (became law on 9 July 2026): new ss 17(3) to (5), 22A, 25A and Schedule 1A.
5. Plain Language Act 2022, s 5.

WorkSafe guidance

6. Safe use of machinery good practice guidelines, ss 4.1, 4.3, 4.8, 7.1, 8.1, 8.2, 9.2, 9.3, 10.1, 10.7.
7. Keeping workers safe when servicing machinery (January 2021).
8. Media releases: Three critical safety failures that led to worker losing fingers (February 2026); Unguarded farm machinery can change lives in seconds (26 August 2026).
9. Understanding the changes to health and safety law (July 2026); Am I a small or large PCBU? (September 2026). worksafe.govt.nz

Research

10. Snowden, D. J., and Boone, M. E. (2007). A leader's framework for decision making. Harvard Business Review, 85(11), 68 to 76. The framework behind the situation names on page 15 (it called Clear 'Simple' and Confusion 'Disorder').
11. Snowden, D., and Friends (2021). *Cynefin: Weaving sense-making into the fabric of our world*. Cognitive Edge, The Cynefin Co. The current situation names.

Other guides that help

Machinery risk touches most of the series.

Guide	Read it for
1	Leading health and safety, and why the same task needs a different approach in different situations.
3	Shared duties, when contractors maintain your machines.
4	Worker voice. How to make it normal for people to stop the line and speak up.
5	When things go wrong. What to do in the first hour after someone is hurt.
6	Critical risks and critical controls, in full.
7	Vehicles, mobile plant and traffic, including forklifts and tractors.

The whole series

1 Leading health and safety · 2 Trust and verify · 3 Shared duties · 4 Worker voice · 5 When things go wrong · 6 Critical risks and critical controls · 7 Vehicles, mobile plant and traffic · 8 Working at height · 9 Psychosocial risk and mental health · 10 Work-related health · 11 Hazardous substances · 12 Asbestos · **13 Machinery, plant and energy isolation** · 14 Remote, isolated and lone work

Sources

Machinery in one minute

- Many machinery injuries happen during cleaning, jams and repairs, not normal running.
- Guard first. Fixed guards beat everything else.
- Lock out before anyone reaches in. One person, one lock.
- A stop button is not lockout.
- A jam every shift is a design problem. Fix the cause.
- Rules on paper are not enough. Walk the machine and watch.

The field guides

1 Leading health and safety
2 Trust and verify
3 Shared duties
4 Worker voice
5 When things go wrong
6 Critical risks and critical controls
7 Vehicles, mobile plant and traffic
8 Working at height
9 Psychosocial risk and mental health
10 Work-related health
11 Hazardous substances
12 Asbestos
13 **Machinery, plant and energy isolation**
14 Remote, isolated and lone work

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