

HAND SAFETY FIRST®

A PSC Hand Safety Brand

HSF Open Industrial Hand Exposure Control SOP Library™

Foundation Release · Version 1.0 · June 2026

Doctrine-first standard operating procedures for the elimination and reduction of hand exposure during industrial lifting and rigging tasks.

handsafetyfirst.in

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Foreword

Most industrial safety systems are built to protect the hand after it has entered the hazard. This library is built to keep it from entering at all.

Across steel plants, fabrication yards, offshore decks, wind farms, shipyards, and maintenance workshops, the pattern is the same: a worker who fully understands the hazard places a hand into it anyway, because the task seems to require it. A load is guided by hand. A sling is freed from under a settled load. A finger checks an alignment. A swing is steadied with a palm. The hazard was never unknown — the hand entered as part of doing the job.

The **HSF Open Industrial Hand Exposure Control SOP Library™** treats this directly. Rather than warning workers to be careful, each procedure identifies exactly where the hand enters, why the worker reaches in, and what method removes the reason for reaching. The focus is exposure elimination and exposure reduction — engineering the hand out of the hazard, and where that is not possible, creating the distance that buys escape time.

This Foundation Release covers ten validated procedures across three exposure categories — Exposure Elimination, Load Guidance, and Sling Handling — together with the doctrine that underpins them, a frozen illustration standard, and a complete visual language. It is published openly so that organisations may adopt, adapt, and integrate these methods into their own safety management systems.

It is a foundation, not a conclusion. Further categories — Distance Creation, Impact & Striking, Tooling & Clamps, and Suspended Zones — will follow in subsequent volumes. What is presented here is complete, internally consistent, and ready for use in the field today.

Hand Safety First®

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How to Use This Library

This library is organised by exposure category, not by industry. The same closing gap crushes a hand in a steel plant and on an offshore deck; the control is the same in both.

The structure of every SOP

Each procedure follows one frozen structure so that a reader who learns one SOP can navigate them all. Every SOP opens with an **HSF Exposure Control Classification** tying it to the doctrine and to related procedures, then works through the exposure, the controls, the safe work procedure, prohibited actions, stop-work criteria, a wrong-versus-preferred comparison, a toolbox-talk message, illustration requirements, and a closing exposure principle.

The Decision Point

Every SOP contains a section called **The Decision Point** — "**Just a Little More**". This is the heart of the library: the exact moment a worker decides to finish a task by hand. Toolbox talks should dwell here. A crew that can recognise the "just a little more" feeling in themselves is the most effective control this library can create.

Reading the illustrations

Each SOP carries six figures built to the HSF SOP Illustration Standard™. They are designed to be understood in three seconds, without reading the procedure: red marks the hazard zone, an orange circle marks where the hand enters, black arrows show force and movement, a green tick marks the preferred method, and a red cross marks the wrong one. Wrong method is shown on the left, preferred on the right.

Adoption

Organisations may adopt these SOPs as written, or adapt them to local equipment and terminology while preserving the exposure-control principles. The doctrine section that follows should be read first: the procedures are applications of it, and they make full sense only once the philosophy is understood.

The HSF Exposure Control Framework

Ten principles underpin every procedure in this library. The SOPs that follow are applications of this doctrine — read this first.

01

Why Hand Injuries Continue Despite PPE

Personal protective equipment is the last line of defence, not the first, yet most hand-safety programmes are built almost entirely around it. Gloves are issued, audited, and enforced, while the task that puts the hand in the hazard is left unchanged. The result is predictable: serious hand injuries continue in plants with excellent glove compliance, because a glove does not change where the hand goes. It only changes what is between the hand and the hazard at the moment of contact. This library starts from a different premise — that the most effective control is to remove the reason the hand enters the hazard at all. PPE remains essential, but it sits at the bottom of the hierarchy, not the top.

02

Hand Exposure vs Hand Injuries

An injury is an event. An exposure is a condition. A hand injury happens in an instant and is recorded after the fact; a hand exposure exists every time a hand is placed where energy, movement, or a closing gap can reach it — whether or not an injury results that day. Counting injuries tells you what already went wrong. Identifying exposures tells you what is about to. This library is organised around exposures, not injuries, because the same exposure that produces a near-miss on Monday produces an amputation on Friday. The question every SOP asks is not 'what injuries have we had here?' but 'where does the hand enter, and why?'

03

Engineer the Hand Out of the Hazard™

The strongest control is the one that does not depend on the worker behaving perfectly under pressure. Rather than asking a worker to keep their hand out of a hazard by willpower, the task is redesigned so the hand has no reason to be there: a tool reaches in, a fixture holds the part, a tagline guides the load, a guide pin finds the hole. This is the core engineering principle of the library — design the exposure out of the task, so that doing the job correctly and doing it safely become the same action. Where the hand cannot be engineered out entirely, distance is created instead.

04

Distance Is Escape Time™

Every hazard near a hand has a reaction window — the time available to withdraw before contact. That window is a function of distance. At 300 mm, a hand has margin; at 100 mm, the margin is gone; at 50 mm, withdrawal is impossible if anything moves. Distance is not a comfort measure or a nicety — it is, quite literally, the time available to escape. Every control in this library that creates standoff, every tool that adds reach, every exclusion zone, exists to preserve escape time. When distance is lost, escape time is

lost with it, and the worker is relying on nothing moving — which is never guaranteed around live loads and closing gaps.

05

The Last 300 mm Rule™

Hand injuries do not occur evenly across a task. They concentrate in the final moments — when a load is almost landed, a component almost aligned, a hole almost mated. In that final stage the gap is smallest, the work feels nearly complete, and the temptation to finish by hand is strongest. The Last 300 mm Rule™ draws a hard, auditable boundary at exactly that point: once any closing gap reduces to 300 mm or less, no part of the hand or arm enters the gap, the load path, or the pinch line. Everything that must happen in the last 300 mm is done by tool, fixture, or tagline — prepared before the gap closed — or the work stops. The boundary is deliberately simple: it can be seen, estimated against knee-to-floor height, taught in one sentence, and audited at a glance.

06

The Decision Point

Most serious hand injuries are not caused by ignorance of the hazard. The worker sees the hazard clearly. The injury occurs because, at a specific moment, the worker performs a silent calculation — 'the correction is small, my hand can fix it in two seconds, the crane is too slow' — and decides the brief exposure is worth it. This library names that moment the Decision Point, and every SOP addresses it directly. The calculation is wrong for one consistent reason: the worker controls the hand, but not the load. Hook swing, sling stretch, operator input, spring-back, and gravity all act faster than a hand can withdraw. The discipline the library teaches is to recognise the 'just a little more' feeling as the signal to reach for the tool — not the hand.

07

The Four Actions of Load Guidance

Crews use one word — 'guide' — for several different actions, and the differences decide whether a hand is safe. This library separates them. Guiding maintains a load's direction with light tagline tension from outside the path. Stopping swing removes pendulum energy through time and line, never the body. Correcting position is done to a stopped load, by tool, from outside the pinch line. Catching — placing a hand or body in the path of a moving load — has no safe method and is prohibited outright. Named separately, the four actions become a checklist a supervisor can coach against: guide it with lines, kill swing with time, correct it when stopped, and never catch it.

08

The Landed–Stable–Slack–Free Principle

De-rigging feels like the safe part of a lift — the load is down, the pressure is off — and that false sense of completion is exactly when hands go where they should not. This principle sets four conditions, all of which must be true before any hand approaches a landed load to remove rigging: the load is fully Landed (weight on its supports, not the slings); Stable (it will not tip, roll, or settle); Slack (no tension in the rigging); and Free (the sling lifts away clean, no hand into any gap). If any one is not true — especially if a sling is trapped — the task is not removal. It is a controlled re-lift or a re-plan. Never trade a trapped sling for a trapped hand.

Tool Enters the Gap, Not the Hand

Across every task in this library, the same substitution appears: where a hand would traditionally reach into a hazard to push, align, feel, hold, or retrieve, a tool does that work instead while the hand stays outside. A push-pull tool corrects a hovering load; a tapered pin finds a bolt hole; a sling passer routes rigging through a gap; a retrieval hook recovers an awkward sling. The tool's entire function is to let the worker apply precision from a place the load cannot reach. The corollary matters as much as the rule: holding a tool is not permission to stand close. The pinch zone crushes a worker holding a tool exactly as it crushes one holding nothing. The protection is the distance, not the tool.

The HSF Exposure Control Hierarchy

Conventional safety hierarchies place elimination at the top and PPE at the bottom. The HSF hierarchy applies that logic specifically to the hand. In order of preference: first, Eliminate Hand Contact — redesign the task so the hand never enters the hazard. Second, Create Distance — where contact cannot be eliminated, use tools, taglines, and standoff to preserve escape time. Third, Control Load Movement — stop, hold, and stabilise energy before any correction. Fourth, Administrative Controls — exclusion zones, signalling, and stop-work authority. Fifth, and last, PPE. Every SOP in this library classifies its controls against this hierarchy, and every SOP subordinates PPE to task redesign. The aim is not better gloves. The aim is a task in which the hand is never in the hazard to begin with.

SOP Index

Ten validated procedures across three exposure categories. Each has six figures.

§	Document	Title	Category
06	EE-SOP-001	The Last 300 mm Rule™	EE — Exposure Elimination
07	LG-SOP-001	Guiding Suspended Loads	LG — Load Guidance
08	LG-SOP-002	Final Positioning and Landing of Suspended Loads	LG — Load Guidance
09	LG-SOP-003	Load Swing Control	LG — Load Guidance
10	LG-SOP-004	Push/Pull Load Correction	LG — Load Guidance
11	LG-SOP-005	Tagline Use	LG — Load Guidance
12	SH-SOP-001	Sling Placement	SH — Sling Handling
13	SH-SOP-002	Sling Removal	SH — Sling Handling
14	SH-SOP-003	Shackle Handling	SH — Sling Handling
15	SH-SOP-004	Hook Engagement	SH — Sling Handling

Categories in this release: **EE** Exposure Elimination · **LG** Load Guidance · **SH** Sling Handling. Forthcoming volumes: DC Distance Creation · IM Impact & Striking · TC Tooling & Clamps · SZ Suspended Zones.

EE — EXPOSURE ELIMINATION

EE-SOP-001 · The Last 300 mm Rule™

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: EE-001 **Exposure Type:** Exposure Elimination — Foundational Doctrine **Primary Hazard:** Closing Gap (load-to-surface, component-to-component, tool-to-workpiece) **Secondary Hazards:** Pinch Lines · Stored Energy Release · Unexpected Movement · Impact Deflection

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- LG-SOP-001 — Guiding Suspended Loads
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- DC-SOP-001 — Creating Safe Distance from Hazards
- DC-SOP-002 — Using Distance Creation Tools
- TC-SOP-001 — Component Alignment
- TC-SOP-002 — Hole and Pin Alignment
- SZ-SOP-002 — Line-of-Fire Control
- EE-SOP-002 — No-Hand Positioning
- EE-SOP-004 — Stop Work Criteria

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Closing Gap, Distance Creation, Exposure Elimination entries.

Doctrine status: This SOP defines a foundational HSF doctrine. Every load-guidance, alignment, positioning, and landing SOP in this library references The Last 300 mm Rule™.

1. PURPOSE

This SOP establishes The Last 300 mm Rule™ — the foundational HSF doctrine governing the final stage of any closing gap.

The rule exists because hand injuries do not occur evenly across a task. They concentrate in the final moments — when a load is almost landed, a component is almost aligned, a hole is almost mated, a part is almost seated. In that final stage, gaps are smallest, urgency is highest, the work feels nearly complete, and the temptation to finish by hand is strongest.

The Last 300 mm Rule™ draws a hard, auditable boundary at that stage:

Once any closing gap reduces to 300 mm or less, no part of the hand or arm enters the gap, the load path, or the pinch line. All remaining work in the last 300 mm is performed by tool, tagline, fixture, or machine — or the work stops.

This SOP defines the rule, where it applies, how it is executed in the field, how it is audited, and what to do when the rule cannot be followed.

2. EXPOSURE SUMMARY

A closing gap is any space between a moving object and a fixed or opposing surface that is reducing toward zero: load to floor, load to structure, component to component, flange to flange, die to bolster, hook to lug, hammer to chisel head.

The danger of a closing gap is not constant. It rises sharply as the gap shrinks, for three compounding reasons:

- 1. Escape time collapses.** At 300 mm, a hand has a margin. At 100 mm, the available reaction window is shorter than human reaction time. At 50 mm, withdrawal is impossible if the object moves.
- 2. Force concentrates.** The same load that would push a hand aside at a wide gap traps and crushes it at a narrow gap. Small gaps convert movement into pressure.
- 3. Attention inverts.** As the gap closes, the worker's eyes and mind lock onto the alignment target — exactly when they should be on the hand. The closer the work is to finished, the less the worker is monitoring their own exposure.

The 300 mm boundary is set where these three curves turn dangerous together. Above 300 mm, distance-control errors are usually recoverable. Below 300 mm, they usually are not.

Exposure mechanisms governed by this rule: crush in the closing gap · pinch at contact points · finger entrapment in mating features · shear at sliding interfaces · impact from sudden gap closure (drop, swing, spring-back, stored energy release).

Exposure Severity Matrix

Exposure	Potential Outcome
Finger inside a gap at point of closure	Crush injury / amputation
Finger in a mating hole or recess at engagement	Fracture / amputation
Hand between load and surface in the last 300 mm	Severe crush / amputation
Hand at a pinch line during sudden closure	Degloving / amputation
Body inside the closing gap	Fatality

3. TYPICAL APPLICATIONS

The Last 300 mm Rule™ applies wherever a gap is closing under load, gravity, machine power, or stored energy:

- Landing suspended loads onto floors, dunnage, stools, foundations, and vehicles
- Mating components: flanges, couplings, gear cases, housings, covers
- Inserting shafts, pins, spigots, and dowels into bores and holes
- Lowering dies, moulds, and patterns onto bolsters and tables

- Positioning plate, sections, and fabrications for fit-up and tacking
- Closing press, clamp, and vice jaws onto workpieces
- Stacking coils, billets, slabs, and pallets
- Engaging hooks, shackles, and lifting points under crane tension
- Any task where a worker can see a gap shrinking toward a surface

The rule is task-independent. If a gap is closing and a hand could occupy it, the rule applies.

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Coil landing, slab stacking, billet handling, roll handling, plate positioning
Offshore / Oil & Gas	Cargo basket landing, skid placement, tubular positioning, valve handling, equipment landing
Wind Energy	Gearbox installation, generator alignment, hub assembly, nacelle component positioning
Manufacturing	Engine mounting, pump positioning, compressor assembly, forklift counterweight installation
Shipyards & Ports	Block assembly, container positioning, machinery installation, cargo handling
Maintenance Workshops	Flange closure, bearing seating, pin insertion, die and mould placement

4. TYPICAL HAND ENTRY POINTS

#	Entry point	What the worker is trying to do
1	Inside the closing gap	Make the final push, pull, or nudge to target
2	Fingers in the mating hole or recess	Feel whether alignment is achieved
3	Hand on the approaching face	Steady or slow the closing object
4	Fingers on the receiving edge	Mark or hold the target position
5	Hand under the descending object	Sweep debris, adjust packing, or "feel it down"
6	Hand between mating components	Hold a gasket, shim, or seal in place during closure
7	Palm against the gap edge	Brace against the structure while sighting the gap

Every one of these entry points exists because the last 300 mm is where precision is needed — and the hand is the most precise tool the worker carries. The rule exists to replace that precision with tools, fixtures, and visual references that do not bleed.

5. EXPOSURE INDICATORS

Supervisors shall treat the following as visible signs that the last 300 mm is being violated or is about to be:

- A hand or forearm inside any gap smaller than roughly knee-to-floor height (≈300 mm field reference)
- Fingers resting in a bolt hole, keyway, or recess while components approach
- A gasket, shim, or seal being held in position by hand during closure

- A worker's face close to a closing gap, sighting alignment from inside the pinch line
- Hands "hovering" at the gap edge, ready to make the final correction
- No tool, tagline, or fixture anywhere near a precision landing or mating task
- The instruction "bring it down slow, I'll guide it" — slow descent does not make hand entry safe
- Any task plan in which gasket placement, shim adjustment, or final alignment has no stated no-hand method

A slow closing gap is still a closing gap. Speed reduces impact energy; it does not create escape time at 50 mm.

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

The Last 300 mm Rule™ exists because of one repeating moment. The work is 99% done. The gap is small. The remaining error is tiny — a few millimetres of misalignment, a gasket slightly off its face, a pin half-engaged. The worker performs the silent calculation:

"It's almost there. The tool is clumsy at this scale. My fingers can feel the alignment. Two seconds. Just a little more."

The calculation feels rational because the worker is weighing **effort against precision** — and the hand wins on precision every time. What the calculation omits is **escape time**. At 300 mm the comparison between hand and tool is a preference. Below 300 mm it is a gamble against load swing, sling stretch release, operator input, spring-back, and gravity — none of which the worker controls, all of which close a small gap faster than any hand can withdraw.

This is why the rule is drawn at a distance, not at a behaviour. "Be careful near closing gaps" asks for judgement at the exact moment judgement is most distorted by near-completion. "No hands inside the last 300 mm" requires none.

The rule at the decision point:

The moment the gap looks small enough to finish by hand is the moment hand entry is most likely to be fatal to the hand. The smaller the remaining correction, the stronger the rule applies.

The alternative method at the decision point:

1. **Stop the closure.** Call "HOLD" — the gap freezes at its current size, never less than 300 mm for any correction work.
 2. **Substitute the hand's function, not the hand:** * Final push/pull → push-pull tool or tagline * Feeling alignment → marked datum lines, tapered pins, alignment cones, sight holes, mirrors, or a torch beam through the bores * Holding a gasket or shim → gasket pins, studs, adhesive tabs, or fixtures installed **before** the gap closed below 300 mm * Steadying the object → tagline, guide rail, or stop block
 3. **If no no-hand method exists for the remaining correction:** open the gap, land or park the object safely, and re-plan the task with the right fixture or tool. Re-work is the designed outcome of the rule, not a failure of it.
-

7. KEY EXPOSURE PRINCIPLE

The last 300 mm of any closing gap is a no-hand zone. Everything that must happen inside it — pushing, aligning, feeling, holding, steadying — shall be done by tool, fixture, tagline, or machine, prepared before the gap closed to 300 mm, or the gap shall not be allowed to close.

The 300 mm boundary is deliberately simple. It can be seen, estimated, marked, taught in one sentence, and audited at a glance. A rule that requires measurement fails in the field; a rule the eye can apply survives.

8. REQUIRED CONTROLS

Planning controls

- Every lift plan, fit-up plan, and assembly method statement shall identify each closing gap in the task and state the no-hand method for the last 300 mm of each one
- Gaskets, shims, seals, packers, and dunnage positioned and secured **before** any gap reduces below 300 mm
- Datum marks, scribe lines, stop blocks, or witness marks applied so final alignment is confirmed by eye from outside the pinch line

Distance-control equipment

- Push-pull tools / load control tools staged at the work point before closure begins
- Taglines attached before the lift or movement starts
- Tapered alignment pins, cones, guide studs, and bullet-nose dowels for all mating and hole-alignment tasks (see TC-SOP-002)
- Mirrors, sight holes, or lighting where alignment cannot be sighted directly from a safe position

People controls

- One controller of the closure (signaller, fitter-in-charge, or operator); one voice
- The last 300 mm treated as an exclusion zone for hands — communicated at the toolbox talk for every task to which it applies
- "HOLD" recognised by every operator as an immediate, unconditional stop of closure

9. SAFE WORK PROCEDURE

Phase A — Identify the gaps (planning)

1. Walk the task and list every closing gap: object, opposing surface, direction of closure, and energy source (crane, gravity, machine, spring).
2. For each gap, write down what work the hand would traditionally do inside the last 300 mm.
3. Assign a no-hand method to each item on that list. If any item has no method, the task is not ready to start.

Phase B — Prepare inside the gap while it is still open

4. With the gap wide (object parked, landed, or blocked), complete everything that needs to happen inside it: place gaskets on pins, set shims, fix packers, clean mating faces, install guide studs, mark datums.
5. Stage push-pull tools and attach taglines.
6. Confirm escape routes and the single controller.

Phase C — Controlled closure to 300 mm

7. Close the gap under control, with all guidance by tagline and tool.
8. At 300 mm, call "HOLD". This is the last point at which alignment is corrected.

9. Confirm alignment **visually** against datums, pins, and marks — never by feel. Use mirrors, sight lines, or lighting if the view is obstructed.
10. Make final corrections with tools and taglines only, bodies outside the pinch lines and the object's shadow.

Phase D — The last 300 mm

11. When alignment is confirmed, the controller orders slow, continuous closure. **From this point, no hand approaches the gap for any reason.**
 12. Tools are withdrawn to full arm extension or removed entirely.
 13. If anything goes wrong inside the last 300 mm — misalignment, snag, shift — the response is never a hand. It is "HOLD", reopen the gap to at least 300 mm, and correct from there.
 14. Close fully. Confirm the object is stable, seated, and de-energised (slings slack, machine isolated, pressure released) **before** any hand approaches.
-

10. PROHIBITED ACTIONS

- Placing any part of the hand or arm inside a closing gap of 300 mm or less, regardless of closure speed
 - Inserting fingers into holes, keyways, recesses, or mating features of approaching components
 - Holding gaskets, shims, seals, or packers in position by hand during closure
 - Checking alignment by feel at any gap below 300 mm
 - "Guiding it in by hand" because the closure is slow, the load is light, or the correction is small
 - Sweeping, cleaning, or adjusting inside a gap below 300 mm while the closing object remains energised or suspended
 - Treating gloves, load weight, descent speed, or worker experience as a justification for hand entry
 - Allowing the gap to close below 300 mm before the no-hand methods are in place
-

11. STOP WORK CRITERIA

Closure shall stop ("HOLD"), the gap shall be held or reopened to at least 300 mm, and the method shall be reviewed when:

1. Any remaining correction appears to require a hand inside the last 300 mm
2. A gasket, shim, packer, or component inside the gap moves out of position after closure has begun
3. Alignment cannot be confirmed visually from outside the pinch line
4. No tool, pin, fixture, or tagline is available for a correction that has become necessary
5. The object swings, rotates, shifts, or snags during closure
6. A hand or arm is observed inside, or moving toward, the last 300 mm
7. Communication between the controller and the operator is lost or unclear
8. Anyone — at any level — feels the urge to finish the job by hand

The expected response is always the same: **hold, reopen to 300 mm or park the object, fix the method, resume.** Reopening a gap costs minutes. It is the rule working, not the rule failing.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Flange 5 mm out of line at 100 mm gap	Fingers between flanges to feel the offset	Reopen to 300 mm; sight against scribe lines; correct with podger bar in the bolt hole from outside, or tapered pins
Gasket slips during closure	Hand in to hold it on the face	HOLD; reopen; refit gasket on guide studs or adhesive tabs
Pin almost in the bore	Finger on the pin end to steer it	Bullet-nose pin or alignment cone fitted before closure; sight hole or mirror to confirm
Load 30 mm off its mark at 150 mm height	Palm on the load, one short push	HOLD at 300 mm; push-pull tool against the load face
Debris spotted on the landing face at 200 mm	Quick hand sweep under the load	HOLD; raise or park the load; clear debris with the gap open
Shim needs a tap at 80 mm gap	Fingers place the shim, tap it home	Reopen; fix shim with tab or fixture; close again
Slow hydraulic closure, "plenty of time"	Hands work inside the gap because it's slow	Same rule: no hands below 300 mm — slow closure has no escape time at 50 mm either

13. TOOLBOX TALK MESSAGE

Title: The Last 300 mm

Look at the gap between your knee and the floor when you kneel. That's about 300 mm. From today, that distance is a line, and the line means one thing: **no hands inside it while the gap is closing.**

Why 300 mm? Because that's where the trade-off flips. Above it, if the load moves, your hand gets out. Below it, if the load moves, your hand stays in. It doesn't matter how slow the closure is, how light the load looks, or how many years you've done the job. Escape time isn't about skill. It's about distance, and below 300 mm there isn't any.

Here's the part nobody tells you: the rule isn't really about the gap. It's about a feeling. The job is nearly done, the gap is small, and something in your head says *"just a little more — my fingers can finish this."* That feeling is the most dangerous moment of your shift. The rule exists so you don't have to argue with it. Small gap? Hands out. No exceptions to debate.

So the method is:

- Everything that needs to be inside the gap — gaskets, shims, packers, cleaning — goes in **while the gap is wide.**
- Final corrections happen at 300 mm, with the tool, the tagline, or the pin. Checked by eye against the marks, never by feel.
- If something goes wrong below 300 mm, the answer is never a hand. It's "HOLD", open it up, fix it, close again. Reopening a gap takes two minutes. A crushed hand takes the rest of your life.

Ask the crew: *"On our jobs, where does a gap close to less than 300 mm with a hand still inside it?"* Every task they name gets a no-hand method before it's done again.

14. ILLUSTRATION REQUIREMENTS

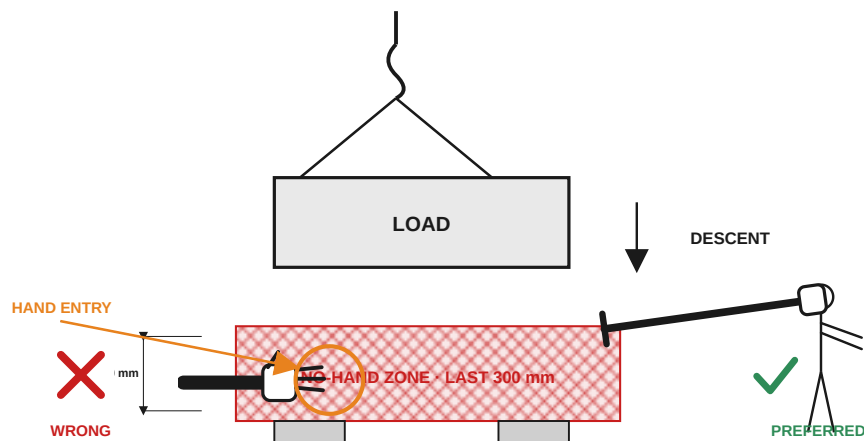
All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, hazard zone shown as hatched area, hand entry point marked with a circle and arrow.

1. **Fig. 1 — The rule itself.** Side elevation of a load above a landing surface; 300 mm dimension line; the zone below the line hatched and labelled "NO-HAND ZONE — THE LAST 300 mm"; a hand symbol outside the zone, ticked; a hand symbol inside, crossed.
2. **Fig. 2 — Escape time collapse.** Three panels of the same gap at 300 mm, 100 mm, and 50 mm; hand shown withdrawing in panel one, trapped in panel three; caption "DISTANCE IS ESCAPE TIME".
3. **Fig. 3 — Prepare while the gap is open.** Two panels: (wrong) hand holding a gasket between closing flanges, crossed; (right) gasket hung on guide studs with the gap wide, flanges closing onto it untouched, ticked.
4. **Fig. 4 — Visual, not tactile.** Worker at a safe position sighting scribe lines/datum marks across a 300 mm gap; second panel showing a tapered pin entering a bolt hole as the alignment device.
5. **Fig. 5 — The field reference.** Kneeling figure with knee-to-floor distance dimensioned at ≈ 300 mm; caption "IF THE GAP IS SMALLER THAN THIS — HANDS OUT".
6. **Fig. 6 — Decision point.** Gap at 80 mm, alignment nearly complete; thought-style callout "JUST A LITTLE MORE?" struck through; arrow sequence: "HOLD → REOPEN TO 300 mm → TOOL, NOT HAND".

15. HSF EXPOSURE PRINCIPLE

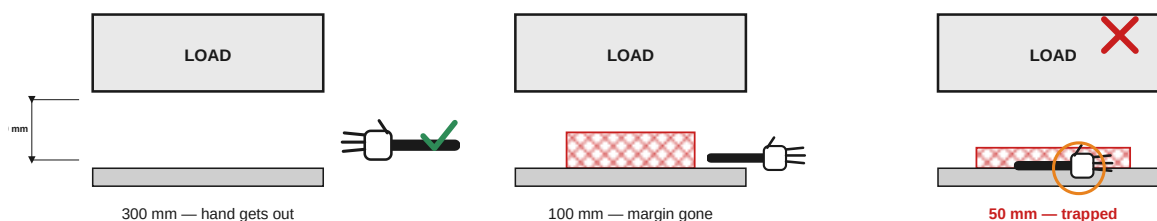
"Distance is escape time. Below 300 mm there is no distance, so there is no escape — which is why, below 300 mm, there are no hands."

Fig. 1 — The no-hand zone



Caption: The last 300 mm is a no-hand zone — corrections by tool from outside the gap, never by hand.

Fig. 2 — Distance is escape time



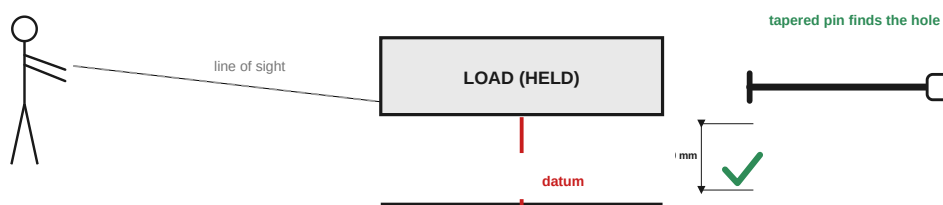
Caption: As the gap closes, escape time collapses — the same hand that withdrew at 300 mm is trapped at 50 mm.

Fig. 3 — Do the in-gap work while the gap is open



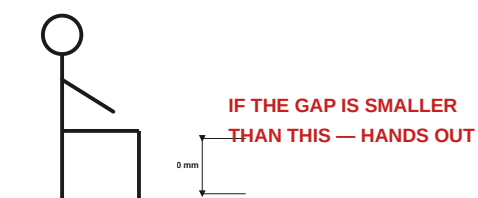
Caption: Fit gaskets and shims with the gap wide and on guide studs — never hold them by hand as the gap closes.

Fig. 4 — Confirm alignment by eye, not by feel



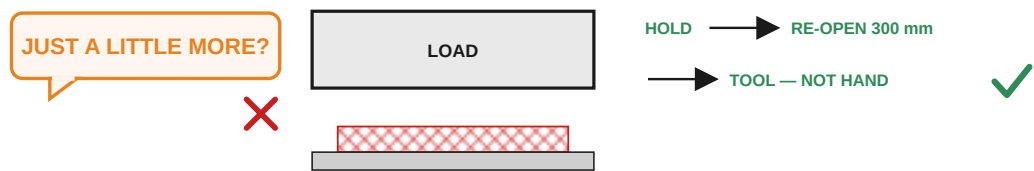
Caption: Sight alignment against datum marks and use a tapered pin — never check by feel inside the gap.

Fig. 5 — The field reference: knee-to-floor ≈ 300 mm



Caption: Kneel and look: knee-to-floor is roughly 300 mm. If the gap is smaller than that, no hands.

Fig. 6 — The decision point



Caption: "Just a little more" is the moment to stop — hold, re-open to 300 mm, and use the tool, not the hand.

LG — LOAD GUIDANCE

LG-SOP-001 · Guiding Suspended Loads

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: LG-001 **Exposure Type:** Load Guidance — Travel, Orientation and Approach Control

Primary Hazard: Direct Hand Contact with a Live Load **Secondary Hazards:** Load Swing · Load Rotation · Crush Against Structure · Fall Zone Occupation · Sling/Hook Strike

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- LG-SOP-003 — Load Swing Control
- LG-SOP-004 — Push/Pull Load Correction
- LG-SOP-005 — Tagline Use
- DC-SOP-002 — Using Distance Creation Tools
- SZ-SOP-001 — Fall Zone Management
- SZ-SOP-002 — Line-of-Fire Control
- SZ-SOP-003 — Exclusion Zones
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Load Guidance, Distance Creation, Fall Zone, Line-of-Fire entries.

1. PURPOSE

This SOP establishes the safe work method for guiding a suspended load — controlling its travel, orientation, swing, and approach from the moment it leaves the ground to the moment it enters the final landing phase (which is governed by LG-SOP-002).

It answers one question:

How do we control a suspended load without touching it?

In most plants, the honest answer today is: workers touch the load. They walk beside it with a hand on the edge, steady it with a palm, turn it by a corner, and slow it with their arms. Each of these converts the human body

into a load-control device. The load weighs hundreds or thousands of kilograms; the hand resists with a few kilograms of grip and zero crush tolerance.

This SOP replaces hand contact with a complete distance-based guidance method: taglines, push-pull tools, exclusion zones, body positioning, and a one-voice command structure — plus the discipline to recognise when a load should not be guided at all.

2. EXPOSURE SUMMARY

A suspended load is live energy. It can swing, rotate, drop, shift in its slings, or be moved by the operator at any moment, with no warning visible from the ground. A hand on a live load is exposed to every one of those movements at zero distance.

The exposure sequence is consistent across industries:

1. The load lifts off and begins to travel.
2. The load drifts, rotates, or swings slightly — normal behaviour, not a fault.
3. The drift makes someone uncomfortable: it is approaching a structure, turning out of orientation, or simply "looks loose."
4. A worker closes distance to the load to take control of it by hand.
5. The worker is now inside the fall zone, inside the swing arc, and between the load and whatever it might strike — with a hand committed to the load.
6. Any input — operator correction, hook swing, sling adjustment, contact with an obstacle, wind — moves the load against, over, or past the worker.

The injury is rarely caused by the load behaving abnormally. It is caused by a person standing where normal load behaviour can reach them, holding the load when it does.

Exposure mechanisms in this task: crush between load and structure · crush between load and adjacent load or equipment · hand carried into a pinch point while gripping the load · strike from swing or rotation · strike from sling, hook, or hardware · fall-zone impact from dropped load or shifted contents.

Exposure Severity Matrix

Exposure	Potential Outcome
Hand on load edge as load contacts structure	Crush injury / amputation
Hand gripping load during sudden swing	Hand carried into pinch — severe crush
Walking beside load, hand on it, load shifts	Crush against structure / knockdown
Catching or arresting a swinging load	Upper limb fracture / crush / fatality
Standing in fall zone when load drops or sheds	Fatality

3. TYPICAL APPLICATIONS

This SOP applies to guiding any suspended load during travel, orientation, and approach:

- Crane, gantry, jib, and monorail movements of fabrications, machinery, and materials
- Chain block and lever hoist movements during maintenance and installation
- Long loads requiring orientation control: beams, pipes, tubulars, rolls, shafts
- Loads travelling through congested areas, between machines, or past structures

- Loads passing over or near work areas, walkways, and equipment
- Loads being rotated, turned, or re-oriented in the air
- Offshore and marine transfers, yard handling, and workshop lifts

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Coil transport to saddles, roll changes, billet and slab movement through bays
Offshore / Oil & Gas	Tubular runs, skid and basket movement on deck, equipment transfer in congested modules
Wind Energy	Blade, hub, and gearbox movement at laydown and up-tower
Manufacturing	Engine, pump, and die movement between stations; machine installation
Shipyards & Ports	Block turning and transport, outfitting lifts, machinery embarkation
Maintenance Workshops	Gearbox and motor movement to benches, component turning for access

This SOP governs the load **in motion and on approach**. Once the load enters the last 300 mm above its landing point, LG-SOP-002 and The Last 300 mm Rule™ (EE-SOP-001) take over.

4. TYPICAL HAND ENTRY POINTS

#	Entry point	What the worker is trying to do
1	Palm flat on the load side during travel	"Steady" the load while walking beside it
2	Grip on the load edge, corner, or lug	Keep the load oriented or stop rotation
3	Both hands on the load face	Slow or stop the load's drift toward a structure
4	Arms out to receive an approaching load	Catch the load and bring it to themselves
5	Hand pressed against a swinging load	Arrest the swing
6	Hand between load and structure	Fend the load off a column, wall, or machine
7	Grip on the sling leg or hook above the load	"Feel" or steer the load through the rigging

Every entry point above is an attempt to use the hand as a **brake, guide, stabiliser, or shock absorber**. The hand is none of these. It has no braking capacity against suspended mass, no crush tolerance, and no release speed once the load takes it somewhere.

5. EXPOSURE INDICATORS

Supervisors and signallers shall treat the following as visible warning signs:

- Any hand on a suspended load during travel — the single clearest indicator in lifting work
- A worker walking beside a moving load, matching its pace, hand resting on it
- Taglines attached but hanging slack or dragging while workers handle the load directly
- A worker positioned between the load's path and a structure, machine, or another load
- Arms rising toward an approaching load — the "receiving" posture
- A worker inside the swing arc trying to time a grab on a moving load

- Workers under or beside the load in its fall zone "to keep an eye on it"
- The instructions "steady it for me", "hold that end", or "walk it over" directed at a person rather than a tagline

Each indicator means the guidance method has defaulted back to hands and shall be corrected before the load moves further.

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

In load guidance, the decision point arrives when the load misbehaves slightly during travel. It drifts toward a column. It rotates ten degrees out of orientation. It develops a small swing. The tagline is in the worker's hand, but the tagline feels indirect — soft, slow, imprecise. The load is right there. The silent calculation runs:

"The tagline isn't holding it. One hand on the corner and I've got it. It's barely moving. Just a little more control."

The calculation feels sound because the load **is** barely moving — and that is the trap. A load drifting at walking pace carries the same mass as a load at rest. The hand can redirect a drifting wheelbarrow; it cannot redirect a drifting two-tonne fabrication. What the hand actually does on a slow-moving load is attach the worker to it. When the operator corrects, the hook swings, or the load touches an obstacle, the worker is no longer guiding the load — the load is moving the worker, toward whatever it strikes next.

The rule at the decision point:

When the tagline feels insufficient, the answer is a better tool position, a second tagline, or stopping the load — never the hand. A load that cannot be controlled from a distance is not under control, and touching it does not change that. It only adds a casualty to the loss of control.

The alternative method at the decision point:

1. **Stop the load.** Call "HOLD". A stationary load is the safest load to regain control of. There is no penalty for stopping a lift; there is every penalty for grabbing one.
2. **Re-establish distance control:** reposition to a better tagline angle, add a second tagline for a rotation couple, or bring a push-pull tool to bear on the load face from outside its path.
3. **If distance control cannot be re-established** — swing building, taglines fouling, no safe position available — land the load at the nearest safe point and re-plan the travel path or the rigging. Setting a load down mid-travel is the rule working (see EE-SOP-004).

7. KEY EXPOSURE PRINCIPLE

A suspended load shall be guided only through taglines, push-pull tools, and operator control — never by direct hand contact. The hand shall not serve as a brake, guide, stabiliser, or shock absorber, and no worker shall walk beside a suspended load with a hand on it.

Guiding is done **from outside** the load's reach: outside the fall zone, outside the swing arc, and never between the load and anything solid.

8. REQUIRED CONTROLS

Planning controls

- Travel path walked and agreed before the lift: clearances, obstacles, pinch corridors (gaps between the load path and structures), and the points where orientation must change
- Guidance method assigned per phase of travel: which taglines, how many, who holds them, where they stand
- Loads that cannot be safely guided identified in planning — see "When not to guide" below

Distance-control equipment

- Taglines: attached before lift-off, of length sufficient to keep handlers outside the fall zone and swing arc, free of knots, loops, and frayed ends; never wrapped around the hand, wrist, or body (see LG-SOP-005)
- Two taglines for long loads and any load requiring rotation control — one line cannot apply a turning couple
- Push-pull tools / load control tools staged along the travel path for corrections at structures and on approach (see DC-SOP-002)

People controls

- One signaller in control of the lift; one voice; the signaller does not handle taglines or tools
- Tagline handlers positioned ahead of or beside the load path at distance — never under the load, never between the load and a structure, never walking backwards
- Exclusion zone moving with the load (see SZ-SOP-003); persons not guiding the load stay outside it
- "HOLD" stops all load movement immediately, from any team member

When not to guide the load at all

Some loads should travel with **no one near them**:

- Loads with stored or shifting energy: coiled material, loose contents, liquids, unsecured parts
- Loads in high wind or with large sail area, where tagline forces exceed what handlers can safely hold
- Loads on long falls where swing energy is high and arcs are wide
- Travel over areas where no safe handler position exists
- Hot, sharp, or contaminated loads

For these, the method is operator-only control at slow speed along a cleared path, with personnel withdrawn entirely. A load that no one can safely guide is guided by no one — not by the bravest person available.

9. SAFE WORK PROCEDURE

Phase A — Before lift-off

1. Walk the travel path. Identify clearances, pinch corridors, overhead conflicts, and the positions handlers will occupy at each stage.
2. Attach taglines to designated points on the load — not to slings or hooks. Confirm length keeps handlers outside the fall zone for the full travel height.
3. Stage push-pull tools at the points where the load must pass close to structures and at the destination.
4. Confirm one signaller, agreed signals, and that "HOLD" from anyone stops the load.
5. Clear the path and establish the moving exclusion zone.

Phase B — Lift-off and stabilisation

6. Lift to clear height and **pause**. Let the load settle and hang true before any travel begins. Confirm sling tension is even and the load is stable.
7. Tagline handlers take up light tension — enough to feel the load, not to fight it. No hand touches the load at any point from lift-off onward.

Phase C — Travel

8. The load moves at a speed the taglines can control. If handlers are leaning into the lines, the load is travelling too fast.
9. Handlers walk beside or ahead of the load path, facing their direction of travel, outside the fall zone and outside the swing arc. **No one walks beside the load with a hand on it. No one walks backwards. No one positions between the load and a structure.**
10. Orientation corrections are made with tagline couples (two lines) or by stopping the load and repositioning — not by gripping and turning.
11. Drift toward an obstacle is corrected early, by tagline, while the gap is still large. If the gap closes anyway: "HOLD", then correct with a push-pull tool from outside the pinch corridor.
12. If swing develops, do not chase it and do not catch it. Stop crane travel, let the swing decay, dampen through the taglines from outside the arc (see LG-SOP-003), then resume.

Phase D — Approach and handover

13. On approach to the destination, slow the load early and bring it in under tagline control to the hover point.
14. At 300 mm above the landing surface, this SOP hands over to LG-SOP-002 — Final Positioning and Landing. The Last 300 mm Rule™ applies: all remaining corrections by tool and tagline; no hand approaches the load until slings are slack.

10. GUIDING, STOPPING SWING, CORRECTING, CATCHING — THE FOUR ACTIONS

Field crews use these words loosely. This SOP separates them, because three are legitimate tasks with safe methods and one is prohibited outright.

Guiding — maintaining the load's direction and orientation during travel. *Safe method:* taglines under light tension, handlers positioned outside the fall zone and swing arc. Continuous, low-force, preventive.

Stopping swing — removing pendulum energy from a load. *Safe method:* stop crane travel, allow decay, dampen through taglines from outside the arc (LG-SOP-003). Swing is removed by time and line work, never by bodies. A swinging load carries energy that arrives all at once on whatever stops it.

Correcting position — moving a stationary or hovering load a small distance onto target. *Safe method:* load held ("HOLD"), correction applied by push-pull tool or tagline from outside the pinch lines (LG-SOP-004, LG-SOP-002). Corrections are made to stopped loads, not moving ones.

Catching — receiving, arresting, or absorbing a moving load with the hands or body. *Prohibited in all circumstances.* There is no safe method for catching a suspended load. A load that is arriving where it should not be is escaped from, not caught. Distance and escape route are the only controls that function at that moment.

The discipline in one line: **guide it with lines, kill swing with time, correct it when stopped, and never catch it.**

11. PROHIBITED ACTIONS

- Touching a suspended load with the hand during lift-off, travel, or approach, for any purpose
- Walking beside a suspended load with a hand resting on it
- Using the hand or body as a brake, guide, stabiliser, or shock absorber against a load
- Catching, receiving, or arresting a moving or swinging load with hands, arms, or body
- Gripping the load to turn it; rotation is achieved by tagline couple or by stopping and re-rigging
- Positioning any part of the body between a suspended load and a structure, machine, or another load
- Standing or walking in the fall zone, or allowing the load to pass over personnel
- Wrapping a tagline around the hand, wrist, or body, or standing inside a tagline bight
- Guiding by hand "because the load is light" — light loads swing faster and crush fingers just as completely
- Continuing to guide a load that the taglines can no longer control

12. STOP WORK CRITERIA

Load movement shall stop ("HOLD"), the load shall be held or landed at the nearest safe point, and the method shall be reviewed when:

1. Any team member's hand makes contact with the load, or is observed moving toward it
2. Tagline control is lost or insufficient — handlers being pulled, lines fouling, load overpowering the lines
3. Swing or rotation develops that taglines cannot dampen from a safe position
4. The travel path is blocked, or clearance to a structure becomes smaller than planned
5. A handler has no safe position for the next stage of travel
6. Wind, visibility, or communication deteriorate
7. The load shifts in its slings, tilts, or sheds any part of its contents
8. Anyone — at any level — feels the urge to put a hand on the load "just to steady it"

The expected response is always the same: **hold or land the load, restore distance control, resume**. A load parked mid-route costs minutes. A hand on a live load can cost everything.

13. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Load drifts toward a column during travel	Hand on the load face to fend it off	Correct early by tagline; if the gap keeps closing, HOLD and use a push-pull tool from outside the pinch corridor
Long load slowly rotating out of orientation	Grip the end and twist it back	Two-tagline couple; or HOLD, let it settle, re-tension lines
Small swing building during travel	Press a hand against the load each pass	Stop crane travel, let swing decay, dampen by tagline from outside the arc
Load arriving at a workbench	Stand at the bench, arms out, receive it	Stand clear of the path; bring the load to hover by tagline; correct by tool per LG-SOP-002
Light load (50 kg) travelling 20 m	Walk beside it, one hand on top — "it's only light"	Same method as a heavy load: tagline, distance, no contact
Tagline feels too soft to control the load	Drop the line and take the load by hand	HOLD; add a second line or improve the angle; if still uncontrollable, land and re-plan

Situation	Wrong method	Preferred method
Load must pass through a tight gap between machines	Two workers fend it through by hand	Stop; re-route, or pass it through under operator-only creep speed with personnel withdrawn and tools staged at the exit
Load swings toward a worker	Catch it and push it back	Step out of the arc along the escape route; never catch

14. TOOLBOX TALK MESSAGE

Title: If your hand is on the load, you're not guiding it — it's guiding you

Watch any lift in any plant and you'll see it: someone walking beside the load with a hand resting on it. It looks careful. It looks like control. It is neither.

That load weighs more than everyone on the crew combined. Your hand on it controls nothing. What it actually does is tie you to the load — so when the hook swings, or the operator corrects, or the load kisses a column, you go where the load goes. Into the column. Under the edge. Across the pinch. The load doesn't know your hand is there, and it doesn't care.

So here is the method, and it doesn't change with the size of the load:

- **Lines guide the load.** Taglines on before lift-off, light tension, you stand outside the fall zone and outside the swing arc. If the line can't hold it, your hand can't either — stop the load.
- **Time kills swing.** Stop travel, let it die, dampen with the line. Never with your body.
- **Corrections happen to stopped loads.** "HOLD" first, then the tool or the line. Never a moving grab.
- **Nobody ever catches a load.** A load coming at you is escaped, not caught. Know your two ways out before the load moves.

And the one that matters most: nobody walks beside a load with a hand on it. Not for ten metres, not for one. The moment your hand touches a live load, you've stopped being the rigger and become part of the rigging.

Ask the crew: *"On which of our lifts does someone usually have a hand on the load — and what line or tool replaces that hand tomorrow?"* Name the lifts. Fix the method.

15. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, hazard zone shown as hatched area, hand entry point marked with a circle and arrow.

1. **Fig. 1 — Wrong method: the walking hand.** Worker walking beside a travelling load, palm on its side; fall zone hatched beneath the load; pinch line hatched between load and adjacent column; hand circled, crossed.
2. **Fig. 2 — Preferred method: tagline guidance.** Same load; two handlers on taglines positioned ahead/beside the path, outside the hatched fall zone and swing arc; signaller separate; ticked.
3. **Fig. 3 — The four actions.** Four-panel strip: GUIDE (tagline, tick), KILL SWING (stopped crane, decaying arc, line dampening, tick), CORRECT (load on HOLD, push-pull tool, tick), CATCH (arms out to a moving load, large cross).
4. **Fig. 4 — Body position map.** Plan view of a travel path between structures; safe handler positions marked; prohibited zones hatched: fall zone, swing arc, the corridor between load path and structures.
5. **Fig. 5 — The pinch corridor.** Load passing a column with shrinking clearance; wrong panel: hand fending the load off the column, crossed; right panel: HOLD called, push-pull tool applied from outside the corridor,

ticked.

6. **Fig. 6 — Decision point.** Load drifting, tagline in hand, load corner within reach; thought-style callout "JUST ONE HAND ON IT?" struck through; arrow sequence: "HOLD → SECOND LINE / TOOL → OR LAND IT".

16. HSF EXPOSURE PRINCIPLE

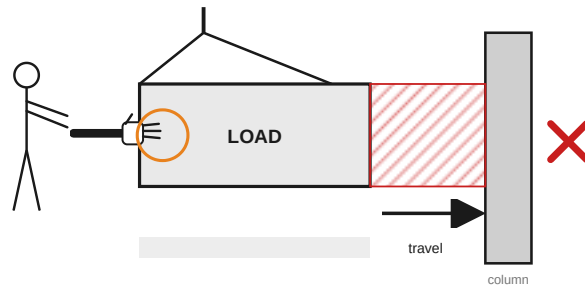
"The hand has no braking force, no crush tolerance, and no release speed. A load you cannot control from a distance is not under control — and touching it only adds your hand to what's already at risk."

ILLUSTRATION PACK — LG-SOP-001

LG-SOP-001 · GUIDING SUSPENDED LOADS

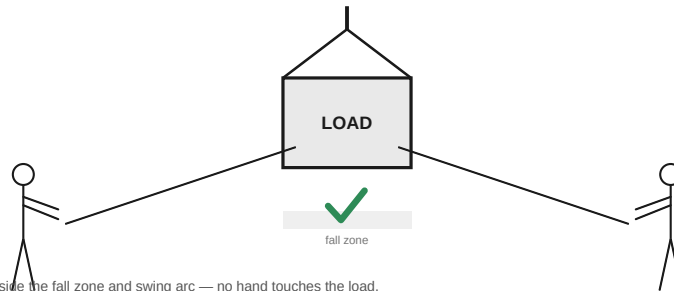
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — A hand on the load makes you part of the rigging



A hand on a live load ties the worker to it — when the load moves toward the column, so does the hand.

Fig. 2 — Guide the load with lines, from outside its reach



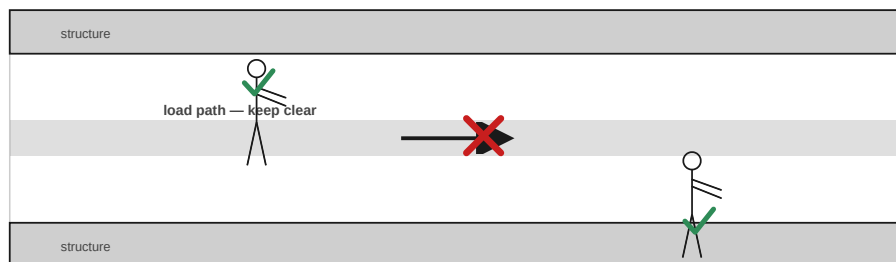
Light tagline tension, handlers outside the fall zone and swing arc — no hand touches the load.

Fig. 3 — Guide, kill swing, correct when stopped — never catch



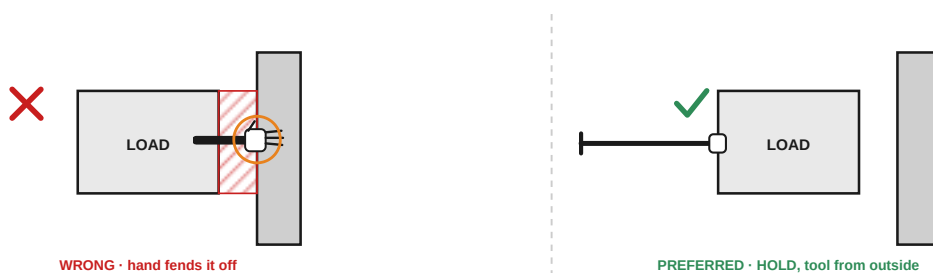
Three legitimate actions, one prohibited: a load arriving at you is escaped, not caught.

Fig. 4 — Stand off the load path, never on it



Handlers work beside or ahead of the path — never on the chord, never between load and structure.

Fig. 5 — Fend a load off a structure with the tool, not the hand



Correct drift early by tagline; if the gap closes, HOLD and use a push-pull tool from outside the corridor.

Fig. 6 — "Just one hand on it" is the moment to stop





A load you cannot control from a distance is not under control — touching it only adds a casualty.

LG — LOAD GUIDANCE

LG-SOP-002 · Final Positioning and Landing of Suspended Loads

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: LG-002 **Exposure Type:** Load Guidance — Final Positioning & Landing **Primary Hazard:** Closing Gap **Secondary Hazards:** Pinch Lines · Load Swing · Load Rotation · Sling Strike on Weight Release

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- DC-SOP-002 — Using Distance Creation Tools (Push-Pull Control)
- LG-SOP-003 — Load Swing Control
- LG-SOP-005 — Tagline Use
- SH-SOP-002 — Sling Removal
- SZ-SOP-001 — Fall Zone Management
- SZ-SOP-003 — Exclusion Zones
- TC-SOP-002 — Hole and Pin Alignment
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Closing Gap, Distance Creation, Load Guidance entries.

1. PURPOSE

This SOP establishes the safe work method for the final positioning and landing phase of a suspended load — the last 300 mm of vertical travel and the final lateral corrections before the load takes its weight on the landing surface, dunnage, foundation, or mating component.

This phase produces a disproportionate share of serious hand injuries in lifting operations. The load is closest to people, the gaps are smallest, the corrections feel most urgent, and the temptation to use the hand as a positioning device is at its peak.

This SOP defines how the landing phase shall be performed so that no hand enters the closing gap between the load and any fixed surface, and no hand is used to absorb, arrest, or correct load movement.

2. EXPOSURE SUMMARY

During final positioning, the load and the landing surface form a **closing gap**. Anything inside that gap when the load settles, swings, rotates, or drops is crushed.

The exposure is not theoretical. It follows a predictable sequence:

1. The load descends to within arm's reach.
2. The load is slightly off target — typically 20–150 mm.
3. The crane or hoist correction feels too slow or too coarse for the remaining distance.
4. The worker judges that a small push, pull, or steady by hand will finish the job faster.
5. The hand enters the closing gap, the pinch line, or the path of load rotation.
6. The load moves unexpectedly — operator input, hook swing, sling stretch release, wind, or contact bounce — and the hand has no escape time.

At a closing gap of 100 mm, a load settling at even 50 mm per second leaves the hand **less than two seconds** of escape time, and in practice far less, because the worker's attention is on the alignment target, not on the hand.

Exposure mechanisms in this task: crush between load and landing surface · crush between load and adjacent structure · pinch at dunnage and packing points · finger entrapment in mating features (bolt holes, spigots, recesses) · impact from load swing or rotation · sling/hook strike on weight release.

Exposure Severity Matrix

Exposure	Potential Outcome
Finger between load and landing surface	Crush injury
Finger in alignment hole or mating feature	Fracture / amputation
Hand under load edge during descent	Severe crush / amputation
Hand between load and adjacent structure	Severe crush
Body between load and structure	Fatality

3. TYPICAL APPLICATIONS

This SOP applies to the final positioning and landing of:

- Fabricated structures, beams, and platework onto stools, trestles, or dunnage
- Machinery, gearboxes, motors, and pumps onto baseplates and foundations
- Coils, billets, slabs, and rolls onto saddles and racks
- Moulds, dies, and patterns onto tables and bolsters
- Pipe spools and valves into position for fit-up
- Containers, skips, and bins onto stands or vehicles
- Vessels and equipment onto transport frames
- Any load lowered onto or into a mating component, recess, or confined landing area

It applies equally to crane, hoist, gantry, jib, and chain-block operations, indoors and outdoors.

4. TYPICAL HAND ENTRY POINTS

Field observation shows the hand enters at predictable points during landing:

#	Entry point	What the worker is trying to do
1	Under the load edge	Steady the load or "feel" the descent
2	Between load and landing surface	Place or adjust dunnage, packing, or shims while the load hovers
3	Between load and adjacent structure	Fend the load off a wall, column, machine, or another load
4	On the load face, palms flat	Push the load the last few centimetres onto target
5	Gripping the load edge or lifting lug	Pull the load toward the target
6	Into mating features	Finger into bolt holes, spigots, or recesses to check alignment
7	Under a tilted or hung-up load	Free a snagged sling, dunnage piece, or obstruction
8	Catching a swinging load	Arrest swing with the hands or body

Every one of these places the hand in a position where load movement of a few millimetres causes injury and load movement of a few centimetres causes amputation or worse.

5. EXPOSURE INDICATORS

Supervisors and riggers shall treat the following as visible warning signs that hand entry is occurring or about to occur:

- A worker positioned within arm's reach of the closing gap during descent
- Palms flat on the load face while the load is still on the hook
- Fingers curled over a load edge, lug, or sling eye during lowering
- A worker crouching or kneeling beside the landing point to "sight" the gap
- Dunnage or shims being adjusted under a hovering load
- Anyone reaching across the load path to receive or guide it
- Taglines abandoned on the ground while workers handle the load directly
- The phrase "hold it there" followed by a worker moving toward the load

Any one of these indicators means the task method has already failed and shall be corrected before the lift continues.

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

Every landing has a moment where the load is **almost** on target. The crane has done 99% of the work. The remaining error is small — a load 40 mm off its mark, a bolt hole half a diameter out of line, a corner that needs to rotate a few degrees.

At this exact moment, the worker performs a silent calculation:

"The crane correction will take a minute and might overshoot. My hand can fix this in two seconds. It's only a small push. Just a little more."

This is the **decision point**. It is not a lapse of awareness — the worker sees the hazard clearly. It is a judgement that the exposure is brief, the force is small, and the control is in their own hands. That judgement is wrong for one reason: **the worker controls the hand, but not the load**. Hook swing, sling stretch release, operator input, contact bounce, and load rotation are all outside the worker's control, and any one of them can close the gap faster than the hand can withdraw.

The rule at the decision point (*The Last 300 mm Rule™ — see EE-SOP-001*):

When the remaining correction feels small enough to do by hand, that is precisely the moment to reach for the distance-control tool instead — because that is the moment the gap is smallest and the escape time is shortest.

The alternative method at the decision point:

1. Call "HOLD" — the load stops and hovers at a safe height (minimum 300 mm above the landing surface for lateral corrections).
2. Apply the correction with a push-pull tool, tagline, or guide fixture — never the hand.
3. If the correction cannot be made with distance-control methods, **land the load on dunnage, slack off, and re-rig or re-plan**. A second lift is always cheaper than a crushed hand.

Toolbox talks on this SOP shall name this moment explicitly. Workers who can recognise the "just a little more" feeling in themselves are the most effective control this library can create.

7. KEY EXPOSURE PRINCIPLE

The hand shall never be inside the closing gap, on the load face, or under the load edge while the load is on the hook. All final corrections shall be made from outside the fall and pinch zones using distance-control methods, or the load shall be landed and re-lifted.

The hand is not a positioning device, a brake, a shim placer, or a swing arrester. Its presence near a live load adds nothing to load control and everything to injury severity.

8. REQUIRED CONTROLS

The following controls shall be available and in use before the landing phase begins:

Planning controls

- Landing point prepared, level, and clear **before** the lift begins
- Dunnage, stools, or stands positioned and secured before the load arrives — never placed or adjusted under a suspended load
- Landing target marked (paint, chalk, datum lines, or stop blocks) so alignment is visual, not tactile
- Lay-down orientation agreed so no re-handling is needed

Distance-control equipment

- Push-pull poles / load control tools of adequate reach for lateral correction
- Taglines of sufficient length, attached before the lift, free of knots and snag points
- Guide fixtures, funnels, tapered pins, or alignment cones for mating tasks (see TC-SOP-002)
- Stop blocks or end stops where the load must be positioned against a datum

People controls

- One signaller in control; one voice only
 - Exclusion zone established around the landing point (see SZ-SOP-003); only the signaller and tool-equipped guides inside the working perimeter, and **no one** inside the fall/pinch zone
 - Crane operator briefed that lowering stops instantly on "HOLD" with no further movement until a clear instruction
-

9. SAFE WORK PROCEDURE

Phase A — Before the load arrives

1. Inspect and prepare the landing surface. Place and secure all dunnage, packing, and stands now.
2. Mark the landing target with visible datum lines or stop blocks.
3. Position push-pull tools and confirm taglines are attached to the load.
4. Establish the exclusion zone. Walk the escape routes — every person near the landing point must know two directions of retreat.
5. Agree signals and confirm the single signaller.

Phase B — Approach (load above 1 m)

6. Bring the load over the landing point at a controlled descent speed.
7. Control orientation and swing using taglines only. No hand touches the load.
8. Workers remain outside the fall zone, positioned at the load's sides — never between the load and any fixed structure, and never in the load path.

Phase C — Final corrections (load hovering at minimum 300 mm)

9. Call "HOLD" at no less than 300 mm above the landing surface.
10. Check alignment **visually** against the marked datum. Do not check by feel.
11. Make all lateral and rotational corrections using push-pull tools or taglines, applied from outside the pinch lines, with the worker's body and feet clear of the load's shadow.
12. If alignment cannot be achieved with distance-control methods within a reasonable effort: land the load on dunnage, slack off, and re-rig. Do not escalate to hand contact.

Phase D — Landing (final 300 mm)

13. Once aligned, the signaller orders a slow, continuous descent. **No person moves toward the load during the final 300 mm.** All tools maintained at full arm extension or withdrawn.
 14. Land the load fully. Confirm it is stable and bearing evenly on its supports.
 15. Slack the slings and confirm the hook carries no weight **before** any hand approaches the load.
 16. Only after slings are slack and the load is confirmed stable may hands be used — for sling removal per SH-SOP-002.
-

10. PROHIBITED ACTIONS

- Placing any part of the hand or arm between the load and the landing surface, at any height
- Placing, adjusting, or retrieving dunnage, shims, or packing under a suspended load
- Pushing or pulling the load by direct hand contact while it is on the hook
- Inserting fingers into bolt holes, recesses, spigots, or mating features of a suspended load
- Steadying, catching, or arresting a swinging or rotating load with hands or body

- Reaching under a tilted, snagged, or hung-up load for any reason
- Positioning the body between the load and any fixed structure
- Touching the load before slings are slack and stability is confirmed

11. STOP WORK CRITERIA

Work shall stop immediately, the load shall be held or landed in a safe position, and the method shall be reviewed when:

1. Any correction appears to require hand contact with a suspended load
2. Dunnage, packing, or the landing surface needs adjustment after the load is airborne
3. The load snags, hangs up, tilts, or behaves unpredictably
4. Swing or rotation cannot be controlled with taglines or tools
5. A worker is observed inside the fall or pinch zone, or with hands on the load
6. Visual alignment to the datum cannot be confirmed from a safe position
7. Wind, visibility, communication, or ground conditions deteriorate
8. Anyone — at any level — feels the urge to "just guide it in by hand"

Stop-work under this SOP is a normal control, not an escalation. The expected response to criterion 1–8 is: **hold or land the load, fix the method, resume.**

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Load 50 mm off target	Palms on the load face, push it across	HOLD at 300 mm; correct with push-pull tool against the load face
Bolt holes misaligned	Finger in the hole to feel alignment	Tapered alignment pin or cone; sight against datum marks
Load swinging on approach	Catch and steady it by hand	Let it settle; dampen with taglines from outside the swing arc
Dunnage out of position	Reach under the hovering load to slide it	Land the load clear, reposition dunnage, re-lift
Load needs slight rotation	Grip a corner and turn it	Tagline couple or push-pull tool at the load corner
Load hung up on an obstruction	Reach in and free it	Stop. Slack off under control. Clear the snag with the load landed or with a tool
Final descent looks tight	Hand under the edge to "feel it down"	Stop blocks and visual datum; nobody within the final 300 mm

13. TOOLBOX TALK MESSAGE

Title: The last 300 millimetres

The crane does 99% of the lift. Almost every crushed hand happens in the last 1% — the final few centimetres, when the load is nearly on target and someone decides their hand can finish the job faster than the crane.

That feeling — *"just a little more, I'll guide it in"* — is the most dangerous moment of the entire lift. You control your hand. You do not control the load. Hook swing, sling stretch, a touch of the lever, a gust of wind — any of these closes the gap faster than you can pull back.

So here is the method, and it never changes:

- Hold the load at 300 mm. Check alignment by eye, against the marks — never by feel.
- Correct with the tool or the tagline. Never the hand.
- If the tool can't fix it, land it, re-rig, lift again. A second lift costs minutes. A crushed hand costs everything.
- Nobody moves toward the load in the final 300 mm. Hands come out only when the slings are slack.

Ask the crew: *"Where in our jobs do we feel that 'just a little more' moment?"* Let them name the tasks. Those are the tasks this SOP exists for.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, hazard zone shown as hatched area, hand entry point marked with a circle and arrow.

1. **Fig. 1 — The closing gap.** Load hovering 100 mm above dunnage; hatched crush zone between load underside and landing surface; worker's hand circled at the gap edge labelled "HAND ENTRY POINT".
2. **Fig. 2 — Wrong method.** Worker with palms flat on the load face pushing toward target; crush line against adjacent structure hatched; cross symbol.
3. **Fig. 3 — Preferred method.** Same scene; worker at full arm extension using a push-pull tool, body outside the load shadow; load path arrow to marked datum; tick symbol.
4. **Fig. 4 — The 300 mm hold.** Side elevation; load held at 300 mm dimension line above landing surface; exclusion boundary marked; tool contact point shown.
5. **Fig. 5 — Dunnage rule.** Two panels: (wrong) hand sliding dunnage under hovering load, crossed; (right) load landed clear, dunnage repositioned, re-lift arrow.
6. **Fig. 6 — Decision point.** Load 40 mm from target; thought-style callout "JUST A LITTLE MORE?" struck through; arrow to tool labelled "USE THE TOOL — NOT THE HAND".

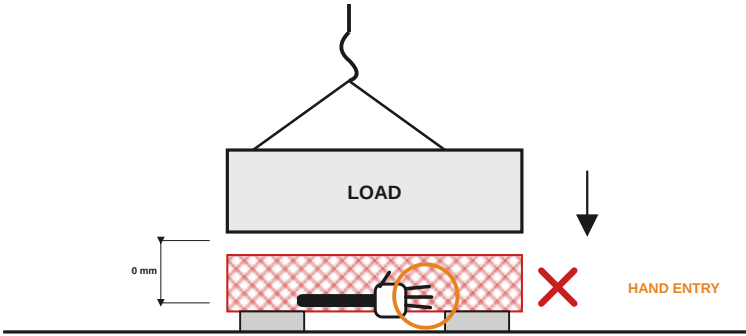
15. HSF EXPOSURE PRINCIPLE

"If the gap is small enough to fix by hand, it is small enough to crush the hand. Final corrections belong to the tool, the tagline, and the re-lift — never to the fingers."

LG-SOP-002 · FINAL POSITIONING & LANDING

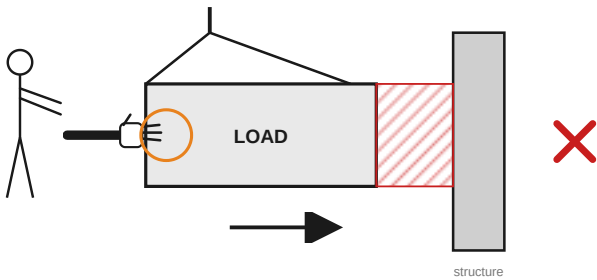
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — The closing gap crushes what enters it



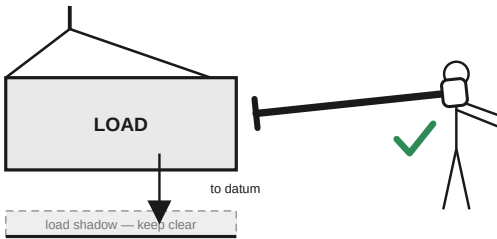
Anything inside the gap when the load settles is crushed.

Fig. 2 — Never push a live load by hand



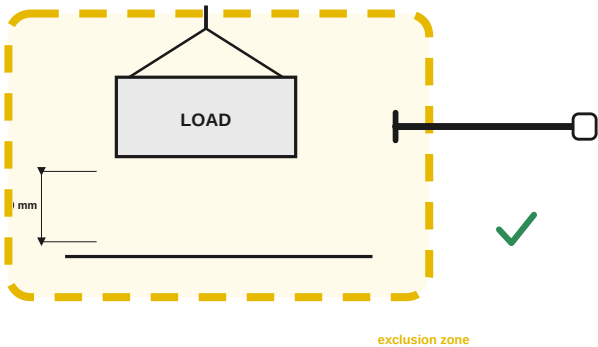
Hands on the load face commit the worker to a load they cannot control.

Fig. 3 — Correct from outside the load shadow



Full arm extension, body outside the shadow, correction by tool to the marked datum.

Fig. 4 — Hold at 300 mm and correct with the tool



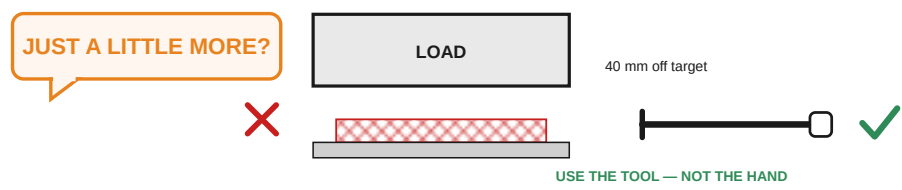
Call HOLD at 300 mm; check alignment by eye; correct with the tool from outside the zone.

Fig. 5 — Land clear before you touch the dunnage



Never place or adjust dunnage under a suspended load — land it clear, then reposition.

Fig. 6 — "Just a little more" is the moment to stop



When the gap feels small enough to fix by hand, that is the moment to reach for the tool.

LG — LOAD GUIDANCE

LG-SOP-003 · Load Swing Control

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: LG-003 **Exposure Type:** Load Guidance — Swing and Pendulum Energy Control

Primary Hazard: Moving Load Energy (pendulum swing and rotation) **Secondary Hazards:** Crush Against Structure · Strike / Knockdown · Pinch on Sudden Return Swing · Sling/Hook Strike

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- LG-SOP-001 — Guiding Suspended Loads
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- LG-SOP-004 — Push/Pull Load Correction
- LG-SOP-005 — Tagline Use
- DC-SOP-002 — Using Distance Creation Tools
- SZ-SOP-001 — Fall Zone Management
- SZ-SOP-002 — Line-of-Fire Control
- SZ-SOP-003 — Exclusion Zones
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Load Swing, Pendulum Energy, Line-of-Fire, Distance Creation entries.

1. PURPOSE

This SOP establishes how load swing is prevented, dampened, and allowed to settle — without any worker using their hand or body to stop it.

Swing is not a guidance task and it is not a positioning task. It is **energy**. A swinging load is a pendulum carrying kinetic energy that must go somewhere before the load can be controlled. This SOP is about where that energy goes. The wrong answer — the answer that injures people every year — is that it goes into a worker who steps in to stop the load.

The single message of this SOP is:

Do not become the brake for a moving load.

A swinging load loses energy through time, control, and distance. It must never lose energy through a worker's body.

2. EXPOSURE SUMMARY

A suspended load hangs from a single point. The moment its centre of gravity moves away from directly below that point — for any reason — gravity pulls it back, and it overshoots. That overshoot is swing. Left alone, it oscillates and slowly decays. Interfered with by a hand, it transfers its energy into that hand.

The exposure with swing differs from static load work in one critical way: **the load is already moving, and it is moving on a path that returns**. A worker who steps clear of a load on its outward swing is struck by it on the return. A worker who stops the outward swing with their hands is then pulled by the load as it reverses.

The exposure sequence:

1. Swing starts — from crane movement, a sudden stop, wind, an off-centre pick, or load shape.
2. The swing looks small at first and feels controllable.
3. A worker moves to "settle" the load by hand before it grows or reaches something.
4. The worker now stands in the swing path, committed to absorbing a moving mass.
5. The load arrives carrying its full pendulum energy and delivers it in one impact — to the hand, then the body — or carries the worker into a structure on the far side of the arc.

The danger is not the weight of the load held still. It is the weight of the load **arriving**. A two-tonne load swinging slowly still delivers two tonnes of momentum to whatever stops it.

Exposure mechanisms in this task: strike from a swinging load · crush between a swinging load and a structure on the far side of the arc · knockdown and fall · hand/arm crushed or carried on contact with the moving load · pinch on the sudden return swing · strike from sling or hook moving with the load.

Exposure Severity Matrix

Exposure	Potential Outcome
Hand placed against a swinging load	Hand carried into pinch — severe crush / amputation
Body used to stop or slow swing	Fracture / internal injury / knockdown
Worker struck by load on return swing	Crush / multiple trauma
Worker between swinging load and structure	Fatal crush
Worker carried by load into the line of fire	Fatality

3. TYPICAL APPLICATIONS

This SOP applies wherever a suspended load can swing or rotate:

- Crane and gantry lifts where the load is travelling, starting, or stopping
- Loads picked off-centre or from an angle, which swing on lift-off
- Long, tall, or large-area loads exposed to wind: plate, panels, blades, formwork, sheeting
- Loads lifted in or out of confined spaces, hatches, shafts, and between structures
- Loads on long falls (deep lifts, up-tower work, over-side lifts) where arcs are wide and energy is high
- Loads stopped suddenly by the operator or by hitting a limit
- Tandem lifts and turning operations where rotation accompanies swing

Industry / Work Area	Example Applications
Steel & Metal Plants	Long bars, plate, and roll handling through bays; off-centre coil picks
Offshore / Oil & Gas	Over-side lifts, deck-to-deck transfers, loads in wind, deep moonpool lifts
Wind Energy	Blades and large nacelle components up-tower; high sail area in wind
Manufacturing	Long fabrications and awkward-CG components between stations
Shipyards & Ports	Block turning, tall panel lifts, container handling in breeze
Maintenance Workshops	Long shafts and beams in confined bays; lifts started off-centre

4. CAUSES OF SWING

Swing is predictable. It comes from a small number of causes, and every one of them can be reduced at the planning stage:

Cause	How it produces swing
Crane movement	Travel, slew, and trolley motion drag the top of the load while inertia holds the bottom back; the load lags, then swings
Sudden stop / start	The fastest swing generator — an abrupt stop leaves the load's momentum to convert directly into a forward swing
Wind	Pushes continuously on the load's sail area; large or flat loads can swing in wind even while stationary
Sling angle / off-centre pick	A load whose centre of gravity is not directly under the hook swings to find its balance point the instant it lifts off
Load shape	Long, tall, or top-heavy loads swing wider and carry more energy; flat loads catch wind
Contact / release	Brushing a structure, or a snag suddenly releasing, kicks the load into swing

The most important consequence of this list: **most swing is created by how the lift is driven, not by bad luck.** Smooth operator inputs, balanced picks, and slow speeds prevent far more swing than any tagline corrects.

Swing Prevention Check — Before Lift-Off

Before the load leaves the ground, confirm:

☐ Centre of gravity is under the hook ☐ Load lifts vertically without dragging or side pull ☐ Taglines are attached and lightly tensioned ☐ Crane movement path is clear of sudden turns and stops ☐ Wind condition is acceptable for the load shape ☐ Handlers have a safe position outside the swing arc ☐ Escape route is identified before travel begins

If swing is visible at lift-off, do not control it by hand. Land the load, correct the pick, and lift again.

5. PREVENT, CONTROL, DAMPEN, CATCH — THE FOUR RESPONSES TO SWING

(Task-specific doctrine section — retained as standalone field language.)

Crews blur these four words. This SOP separates them, because the order of preference is fixed and the last one is prohibited.

Preventing swing — stopping swing before it starts. *Method:* balanced picks (CG under the hook), smooth operator inputs, slow speeds, no sudden stops, taglines under light tension from lift-off, lifts planned out of the wind where possible. **This is the primary control.** Every degree of swing prevented is a degree no one has to deal with later.

Controlling swing — keeping an unavoidable small swing within safe bounds. *Method:* steady tagline tension and smooth crane work to stop the swing growing. Handlers stay outside the arc; the line does the work, the body never does.

Dampening swing — actively removing energy from a load already swinging. *Method:* stop crane travel, then take energy out gradually through the taglines from outside the arc, pulling with the swing's rhythm — never against it in one jerk. Dampening is done with lines and time, at distance.

Catching swing — placing a hand or body in the swing path to stop the load. *Prohibited in all circumstances.* There is no safe way to catch a swinging load. The load delivers its full momentum to whatever stops it, then reverses and pulls. A load swinging toward a person is escaped from along a known route — never caught.

The discipline in one line: **prevent it at the pick, control it with the line, dampen it with time — and never catch it with your body.**

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

With swing, the decision point arrives when the load develops a small oscillation and a worker judges they can settle it quickly by hand before it becomes a problem. The swing is gentle. The load is close. The worker thinks:

"It's only swinging a little. One hand will steady it before it builds. I'll just take the energy out of it — just a little more and it's still."

The calculation feels safe because the swing **is** small at that instant. But a pendulum's danger is not in how far it has swung — it is in the mass behind it. A small, slow swing on a heavy load carries enough momentum to break the hand that stops it and pull the worker off balance into the return arc. And the worker has placed themselves in the one location the load is guaranteed to return to: the swing path.

The harder truth: a hand on a swinging load does not remove energy smoothly. It takes the whole impact at the point of contact, then the load reverses with most of its energy intact and the worker still attached to it.

The rule at the decision point:

A swing small enough to feel "catchable" by hand is exactly the swing most likely to injure the hand, because it invites contact. The smaller the swing looks, the more disciplined the no-hand response must be. Energy comes out through the line and the clock — never through the worker.

The alternative method at the decision point:

1. **Stop adding energy.** Call "HOLD" on crane movement. Most small swings are being fed by ongoing crane motion; stopping the input often lets the swing decay on its own.

2. **Dampen from distance, not contact.** Take energy out through the taglines from outside the arc, working with the rhythm of the swing. If no line is in hand and the swing is mild, the correct action is frequently to **wait** — let the pendulum settle.
 3. **If the swing is growing or wide:** withdraw all personnel from the arc and the line of fire, hold the load, and let it settle before anyone approaches. A load that needs more than line-and-time control needs people further away, not closer.
-

7. KEY EXPOSURE PRINCIPLE

Swing energy is removed through time, control, and distance — never through a worker's hand, body, chest, shoulder, hip, or leg. No part of the body shall be used to stop, slow, absorb, or redirect a swinging load.

A worker who stops a swing with any part of their body has become the brake for a moving load. The hand has no force to oppose pendulum momentum, no crush tolerance, and no way to release once the load takes it into the return arc.

8. REQUIRED CONTROLS

Prevention controls (primary — applied before swing starts)

- Balanced pick: centre of gravity confirmed under the hook before lift-off; loads lifted off the ground only after they hang true
- Smooth operator technique: gradual starts and stops, no abrupt travel changes; speed matched to the load and the space
- Taglines under light tension from lift-off (see LG-SOP-005), attached to the load, never to slings or hooks
- Lift planning that avoids high wind, tight arcs near structures, and sudden direction changes

Distance-control equipment

- Taglines of length sufficient to keep handlers outside the swing arc through the full lift height; two lines for long loads or where rotation accompanies swing
- Push-pull tools / load control tools for damping and correcting a stopped or hovering load on approach, applied from outside the arc (see DC-SOP-002, LG-SOP-004)

People controls

- One signaller in control of crane movement; one voice; "HOLD" stops all motion immediately
- Handlers positioned outside the swing arc and out of the line of fire — never on the chord the load will swing across, never between the load and a structure on the far side
- Moving exclusion zone sized to the swing arc, not just the load footprint (see SZ-SOP-003)

When to withdraw and wait

Personnel shall withdraw from the arc and the load shall be allowed to settle when:

- The swing is wide, growing, or compound (swinging and rotating together)
- Wind is driving the swing and tagline force is no longer comfortable to hold
- The load is on a long fall with a wide, slow, high-energy arc
- No handler can take a safe position outside the arc

Waiting for a pendulum to settle is a legitimate, planned control — not lost time. The crane holds, people stand clear, the load loses its energy to time, and work resumes when it is still.

9. SAFE WORK PROCEDURE

Phase A — Prevent swing at the pick

1. Confirm the centre of gravity is under the hook. Take the load just clear of the ground and let it hang true before lifting further. Correct an off-centre pick by landing and re-rigging — never by hand once airborne.
2. Attach taglines and take up light tension before travel begins.
3. Brief the operator on smooth starts and stops and the agreed travel speed.

Phase B — Control during travel

4. Travel at a speed the taglines can manage. Handlers keep light, steady line tension and stay outside the arc.
5. The operator avoids sudden stops and direction changes — the largest swing generators. If the load must stop, the operator decelerates smoothly.
6. Anticipate swing at the points where it is generated: starting, stopping, slewing, and exposure to wind. Reduce speed approaching these points rather than correcting swing after them.

Phase C — Dampen an existing swing

7. First, stop adding energy: "HOLD" crane movement. Observe whether the swing is decaying on its own.
8. Dampen through the taglines from outside the arc, working with the swing's rhythm — short, smooth pulls as the load moves away, never a single jerk against it.
9. Do not chase the load around its arc. Hold position outside the arc and let the line and time do the work.
10. If the swing is wide, growing, or compound: withdraw personnel, hold the load, and wait for it to settle.

Phase D — Approach with the load settled

11. Bring the load to the approach point only once swing is within control. A swinging load is never taken into the final approach.
 12. At the hover point, hand over to LG-SOP-002 for final positioning. The Last 300 mm Rule™ applies: corrections by tool and tagline; no hand on the load.
-

10. PROHIBITED ACTIONS

- Stopping, slowing, or absorbing a swinging load with the hand, arm, chest, shoulder, hip, back, or leg
 - Catching a swinging load, or stepping into the swing path to arrest it
 - Placing a hand on a swinging load "to steady it" or "to take the energy out"
 - Standing on the chord of the swing, or between the swinging load and any structure on the far side of the arc
 - Chasing a swinging load around its arc to grab it
 - Pulling a tagline in a single hard jerk against the swing — this loads the line and the worker, not the swing
 - Wrapping a tagline around the hand, wrist, or body, or standing inside a line bight while damping
 - Continuing to work a load whose swing is growing or cannot be controlled from outside the arc
 - Treating a slow swing as harmless because it "looks gentle" — slow swings carry full mass
-

11. STOP WORK CRITERIA

Crane movement shall stop ("HOLD"), personnel shall withdraw from the arc and line of fire, and the load shall be allowed to settle when:

- 1. Swing is growing rather than decaying under tagline and operator control
- 2. Swing and rotation are combining into a compound, unpredictable motion
- 3. Wind is driving swing beyond what handlers can safely hold on the lines
- 4. Any worker is observed in the swing path, on the chord, or moving to stop the load by hand or body
- 5. The load is swinging toward a structure, equipment, or personnel with closing clearance
- 6. A handler has no safe position outside the arc
- 7. Taglines foul, snag, or become inadequate to dampen the swing
- 8. Anyone — at any level — feels the urge to step in and steady the load by hand

The expected response is always the same: **stop crane input, clear the arc, let the load settle, then resume.** Letting a pendulum die costs seconds. Becoming its brake costs a body.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Small swing develops during travel	Hand on the load to steady it before it grows	HOLD crane input; let it decay or dampen by tagline from outside the arc
Load swings toward a worker	Catch it and push it back	Step out of the arc along a known escape route; never catch
Load picked off-centre, swings on lift-off	Grab a corner to settle it once airborne	Land it, re-rig so CG is under the hook, lift again
Wide swing on a long fall	Two workers brace against it as it arrives	Withdraw from the arc; hold the load; wait for it to settle
Wind pushing a flat load into swing	Body-block it against the wind	Reduce sail exposure, reorient, or postpone; control by line from outside the arc; withdraw if line force is excessive
Swing needs taking out fast	One hard jerk on the tagline against the swing	Smooth pulls with the swing's rhythm, energy removed over several cycles
Load swinging near a column	Hand between load and column to fend it	HOLD; let it settle; correct clearance with a push-pull tool from outside the pinch line
Slow, gentle swing on a heavy load	"It's barely moving" — settle it by hand	Same rule: lines and time, never the body — slow swing carries full momentum

13. TOOLBOX TALK MESSAGE

Title: Do not become the brake for a moving load

A swinging load is not a load you guide. It is energy looking for somewhere to go. Your job is to make sure that somewhere is never you.

Here's what fools people: the swing looks gentle. It's drifting slow, you think one hand will settle it. But that load weighs what it weighs whether it's still or moving, and when it's moving, all that weight is behind it. Put a

hand out to stop it and you don't take the energy out smoothly — you take all of it, at once, at your fingertips. Then the load swings back the way it came, and now you're attached to it.

And it isn't just hands. Nobody stops a swing with a shoulder, a hip, a chest, a knee, or a back. The body is not a brake. A load that's swinging at you is a load you step away from — along an escape route you picked before the lift started.

So here's the method:

- **Prevent it first.** Balanced pick, smooth crane, slow speeds, no sudden stops. Most swing is made by how the load is driven — kill it at the source.
- **Control it with the line.** Light tagline tension, you standing outside the arc, never on the path it swings across.
- **Dampen it with time.** Stop the crane, let it decay, ease the energy out through the line with the swing — never one hard yank against it.
- **Sometimes just wait.** A wide swing? Everybody out of the arc, hold the load, let the pendulum die. Standing back and waiting is the method, not a delay.

Ask the crew: *"When a load starts to swing on our jobs — what does everyone instinctively do?"* If the honest answer is "reach for it," that's the habit this SOP exists to break.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, hazard zone shown as hatched area, swing arc shown as a dashed arc, hand/body contact point marked with a circle and arrow.

1. **Fig. 1 — The pendulum.** Side elevation of a suspended load mid-swing; dashed arc showing the full path; the chord of the arc hatched and labelled "SWING PATH — NO PERSONNEL"; the far-side structure marked as the return-swing crush point.
2. **Fig. 2 — Wrong method: the human brake.** Worker with hands (and body) meeting a swinging load; impact arrow into the hand; second ghosted figure showing the return swing pulling the worker; large cross.
3. **Fig. 3 — The four responses.** Four-panel strip: PREVENT (balanced pick, CG under hook, tick), CONTROL (light tagline, handler outside arc, tick), DAMPEN (crane stopped, line easing energy out over the arc, tick), CATCH (body in the swing path, large cross).
4. **Fig. 4 — Causes of swing.** Single diagram annotating the generators: crane travel drag, sudden stop, wind on sail area, off-centre pick, load shape — each with a small arrow showing how it starts the swing.
5. **Fig. 5 — Damping with rhythm.** Plan or side view showing tagline pulls timed with the swing direction (with the load), arrows over several decaying cycles; contrasted inset of a single hard jerk against the swing, crossed.
6. **Fig. 6 — Decision point.** Load in a small early swing, worker's hand reaching toward it; thought-style callout "JUST STEADY IT?" struck through; arrow sequence: "HOLD CRANE → LINE & TIME → OR CLEAR THE ARC AND WAIT".

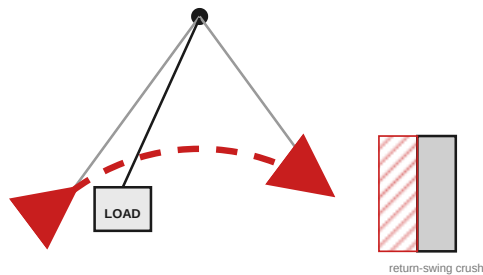
15. HSF EXPOSURE PRINCIPLE

"The load must lose energy through time, control, and distance — not through a worker's body."

LG-SOP-003 · LOAD SWING CONTROL

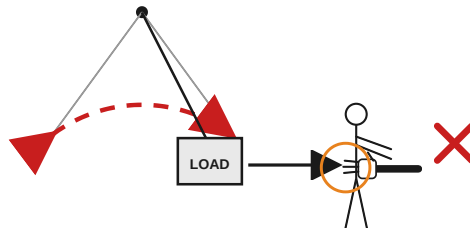
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — A swinging load is energy on a path that returns



The load swings out and returns — anyone on the path is struck on the way back.

Fig. 2 — The body is not a brake



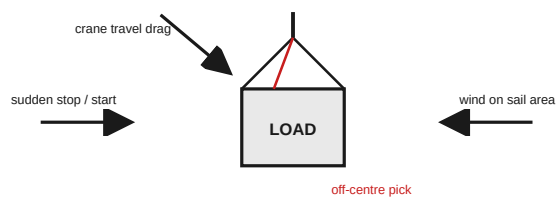
A hand or body stopping a swing takes its full momentum at the point of contact, then the load reverses.

Fig. 3 — Prevent, control, dampen — never catch



Prevent it at the pick, control it with the line, dampen it with time — never catch it with the body.

Fig. 4 — Most swing is made by how the lift is driven



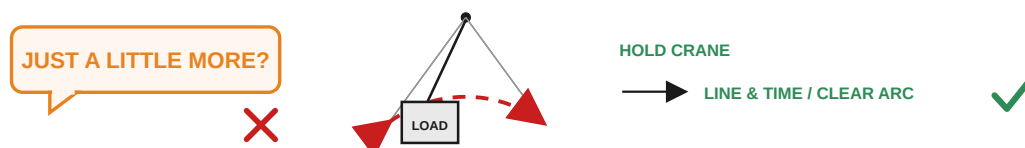
Crane travel, sudden stops, wind, off-centre picks and load shape all generate swing — prevent at source.

Fig. 5 — Take energy out with the swing, not against it



Stop the crane first, then ease energy out over several cycles — a single jerk loads the line and the worker.

Fig. 6 — "Just steady it" is the moment to stop



LG — LOAD GUIDANCE

LG-SOP-004 · Push/Pull Load Correction

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: LG-004 **Exposure Type:** Load Guidance — Position Correction by Distance-Control Tool **Primary Hazard:** Pinch-Zone Entry During Correction **Secondary Hazards:** Line-of-Force Entry · Tool Kickback / Slip-off · Crush Against Structure · Over-Levering Tool Failure

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- LG-SOP-001 — Guiding Suspended Loads
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- LG-SOP-003 — Load Swing Control
- LG-SOP-005 — Tagline Use
- DC-SOP-002 — Using Distance Creation Tools
- TC-SOP-001 — Component Alignment
- SZ-SOP-002 — Line-of-Fire Control
- SZ-SOP-003 — Exclusion Zones
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Distance Creation, Load Guidance, Closing Gap, Line-of-Fire entries.

1. PURPOSE

This SOP establishes how a small load correction is made using a push/pull tool or distance-control tool — instead of a hand — when a suspended or supported load is close to target but not quite on it.

It answers one question:

How do we make small load corrections without placing hands on the load, entering the pinch zone, or becoming connected to the load?

The push/pull tool exists for one moment: the load is held, hovering, almost aligned, and needs a nudge. That moment is exactly where hands are lost (see LG-SOP-002 and EE-SOP-001). The tool lets the worker apply

that nudge from outside the gap and outside the load's reach. But a tool in the hand is not protection by itself — a worker can stand in the pinch zone holding a push/pull tool just as easily as holding nothing. The protection comes from where the worker stands and how the force runs.

The governing idea:

The tool is an extension of distance, not a licence to stand in the load path.

2. EXPOSURE SUMMARY

A push/pull tool puts a rigid length between the worker's hands and the load. Used correctly, the worker stands well back, the tool reaches in, and the force is applied across a gap the hand never enters. Used incorrectly, the worker stands at the load — in the pinch zone, in line with the force — and the tool simply becomes the thing their hands are holding while they get crushed.

The exposure sequence:

1. The load is held, hovering, slightly off target.
2. The worker picks up a push/pull tool to make the correction.
3. To get "purchase" or a better angle, the worker steps in close to the load and the gap.
4. The tool is set against the load and force is applied.
5. The tool slips, the load shifts, or the load moves the wrong way — and the worker, standing in the pinch zone or in the line of force, is struck, crushed, or caught by the kicking tool.

The tool did its job — it reached across the gap. The injury came from the worker not staying behind it.

Exposure mechanisms in this task: crush in the pinch zone the worker entered to apply force · strike from tool kickback when the tool slips off the load · strike along the line of force when the load moves suddenly · crush between load and structure when correcting toward a fixed surface · tool failure from over-levering, sending fragments or releasing stored force · hand on the load "just to guide the tool in."

Exposure Severity Matrix

Exposure	Potential Outcome
Hand in the pinch zone while positioning the tool	Crush injury / amputation
Standing in the line of force when the tool slips	Strike / fall / facial injury from kickback
Body between load and structure during a push	Severe crush / fatality
Hand on the load to steady the tool	Crush / pinch — the exposure the tool was meant to remove
Over-levered tool fails under load	Strike from fragments / sudden release / loss of balance

3. TYPICAL APPLICATIONS

This SOP applies wherever a held or hovering load needs a small position correction:

- Final lateral nudges to bring a hovering load onto its mark (with LG-SOP-002)
- Closing the last small offset for component fit-up and alignment (with TC-SOP-001)

- Correcting a load's position relative to a structure, foundation, or mating part
- Rotating or squaring a load a few degrees at the hover, where a tagline couple is impractical
- Easing a load off light contact with a structure without using a hand
- Holding a load steady at a contact point while another control is applied — by tool, not hand

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Squaring rolls and plate onto saddles; nudging coils onto target
Offshore / Oil & Gas	Easing skids and equipment onto foundations; correcting valve and spool position
Wind Energy	Final alignment of nacelle components and bedplate fit-up
Manufacturing	Seating engines, pumps, and gearcases onto baseplates; die positioning
Shipyards & Ports	Squaring blocks and panels; correcting machinery position on seats
Maintenance Workshops	Flange squaring, bearing and housing alignment, die and mould correction

A push/pull tool corrects **position at the hover**. Orientation during travel is a tagline task (LG-SOP-005); the final closure is governed by the Last 300 mm Rule™ (EE-SOP-001).

4. PUSH, PULL, HOLD, PRY, LEVER, BRACE — WHAT THE TOOL IS FOR

(Task-specific doctrine section — retained as standalone field language.)

Workers reach for one tool and use it six different ways. Three are correct, and three are misuses that either overload the tool or pull the worker into the hazard.

Pushing — applying force to move the load away from the worker, onto target. *Correct*. The preferred direction: the worker stands back, the load moves away from them, the line of force points away from the body.

Pulling — applying force to move the load toward the worker. *Correct, with caution*. Sometimes unavoidable, but it brings the load toward the worker's position — so the worker stands well back and offset, never directly in the load's path of travel, with an escape route behind them.

Holding — keeping a load steady against a light, known tendency to drift while another control acts. *Correct, within limits*. A steady, manageable force only. If holding requires the worker to brace hard against the load, the load is not under control and the task stops.

Prying — forcing the tool tip under or into the load to gain mechanical advantage. *Misuse*. A push/pull tool is not a pry bar. Prying loads the tool beyond its design, invites a sudden slip, and concentrates force at a tip that can shoot out.

Levering — using a structure as a fulcrum to multiply force beyond the tool's intended function. *Misuse*. Over-levering fails tools, stores energy, and removes control. If the required force exceeds what the tool delivers in normal push/pull use, the correction is wrong for the tool — change the method (crane or re-rig), not the leverage.

Bracing — putting the body behind the tool to add weight, or wedging the body to hold a push. *Misuse / failure state*. Bracing the body into the tool puts the worker in the line of force and commits them to whatever the load does next. The tool is held, not braced into.

The discipline in one line: **push from distance, pull from offset, hold only light loads — never pry, never over-lever, never put your body behind the tool.**

5. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

With a push/pull tool, the decision point is subtle, because the worker is already doing the right thing — using a tool instead of a hand. The temptation is not to drop the tool; it is to **close the distance the tool was meant to preserve**. The load is almost there. The tool angle feels awkward from back here. The correction needs a bit more force. The thought runs:

"I've got the tool, I'm being safe — I'll just step in for a better angle and lean into it. One more push and it's on. Just a little more."

The trap is that holding a tool feels like permission to stand close. It is not. The pinch zone crushes a worker holding a push/pull tool exactly as it crushes a worker holding nothing, and the line of force runs through whoever is behind the tool. Stepping in for "a better angle" and "leaning into it" puts the worker into both hazards at once — in the gap, and behind the force — at the precise moment the correction is hardest and the load most likely to move.

The awkward angle from a safe distance is not the problem to solve. The need for more force is the signal that the correction may be wrong for the tool.

The rule at the decision point:

A push/pull tool protects only from outside the pinch zone and outside the line of force. The moment the correction seems to need the worker to step in or lean in, it has stopped being a tool correction — and the answer is the crane, a re-rig, or a different tool position, never a closer stance.

The alternative method at the decision point:

1. **Hold the load.** Call "HOLD". A stationary, held load is corrected far more safely than one still being driven.
2. **Change the geometry, not your distance.** Reposition the tool contact point, take a longer tool, or change the approach angle from where you stand — keep the body out of the gap and out of the line of force.
3. **If a tool correction still needs force that pulls you in:** make the correction by **crane movement** instead, or **land the load and re-rig**. A small offset that the tool cannot safely close is a crane or rigging task, not a reason to stand in the pinch zone.

6. KEY EXPOSURE PRINCIPLE

A push/pull tool creates distance only while the worker stays outside the pinch zone and outside the line of force, applies force from a stable stance behind the tool, and never braces the body into it or uses it as a pry bar. The tool reaches into the hazard so the worker does not have to.

A worker standing in the pinch zone with a tool in their hands has gained nothing. The tool's only function is to let the worker apply force from a place the load cannot reach.

7. PRACTICAL FIELD INDICATORS OF UNSAFE PUSH/PULL CORRECTION

Supervisors and signallers shall treat the following as visible warning signs:

- A worker standing in the pinch zone or close gap while using the tool
- A worker directly behind a pushing tool in line with the force, or directly in a pulling load's path
- The body braced, wedged, or leaning hard into the tool to add force
- The tool used as a pry bar — tip forced under or into the load for leverage
- The tool levered against a structure to multiply force beyond normal push/pull
- A second hand placed on the load "to guide" or "to steady" while the tool is applied
- The tool tip set on a smooth, sloped, or unstable contact point likely to slip
- A worker positioned between the load and a structure while pushing the load toward it
- The tool reached out at full stretch from an off-balance stance with no escape route

Each indicator means the distance the tool is supposed to create has been given away, and shall be corrected before force is applied.

8. REQUIRED CONTROLS

When the push/pull tool is the right control

- The load is **held or hovering** (not travelling, not swinging) and needs a small position correction
- The offset is small enough to close with normal push/pull force from outside the pinch zone
- A stable, positive contact point exists on the load for the tool tip
- A safe, stable stance is available outside the pinch zone and out of the line of force

When the push/pull tool is NOT the right control / use another method

- The load is still **travelling or swinging** — settle and orient it first by tagline (LG-SOP-001, LG-SOP-003, LG-SOP-005)
- The correction needs more force than normal push/pull delivers — make the correction by **crane movement**
- No stable tool contact point or no safe stance exists — **land the load and re-rig**
- The only available stance is in the pinch zone, in the line of force, or between the load and a structure — do not force it; change the method

Tool and contact point

- Tool of adequate length to keep the worker clear of the pinch zone and line of force at the working geometry
- Tool sound and rated for the task; no makeshift bars, no damaged tools, no extensions that change its rating
- Contact point chosen to be positive and slip-resistant — a defined face, edge, or feature, not a smooth slope; the tip seated before force builds

Body position and force application

- Worker outside the pinch zone and out of the line of force throughout
- For a **push**: stand back with the load moving away from the body; line of force points away from people and toward a clear path, never toward a worker on the far side
- For a **pull**: stand offset from the load's path of travel with an escape route behind; never directly in line with a load that may run

- Stable, balanced stance; force from the legs and body weight held *behind* the tool's line, not braced *into* the load; ready to step clear if the tool slips
- No second hand on the load; the tool is the only thing that contacts it

Kickback and over-levering

- Anticipate slip-off: keep the body out of the arc the tool would travel if the tip lets go
- Apply smooth, progressive force — not a sudden shove that can slip
- Never pry, never lever against a fulcrum to multiply force; if normal force will not do it, the tool is the wrong control

Relation to taglines and the Last 300 mm Rule™

- **Taglines control orientation** during travel and at the hover; **push/pull tools correct position** at the hover. They work together: lines hold the facing, the tool makes the small move.
- All push/pull correction in the final closure obeys the Last 300 mm Rule™ (EE-SOP-001): the tool reaches into the last 300 mm; the hand never does; corrections are made with the load held, not during closure.

9. SAFE WORK PROCEDURE

Phase A — Confirm the tool is the right control

1. Confirm the load is held or hovering, not travelling or swinging. If it is moving, settle and orient it first by tagline.
2. Judge the offset and the force needed. If it exceeds normal push/pull, plan to correct by crane or to land and re-rig instead.
3. Identify a positive tool contact point on the load and a stable stance outside the pinch zone and line of force. If neither exists, change the method.

Phase B — Set up

4. Select a tool long enough to keep you clear at the working geometry; confirm it is sound and rated.
5. Brief the signaller; "HOLD" holds the load steady throughout the correction. One voice.
6. Confirm your escape route and that no one is on the far side in the line of force or between the load and a structure.

Phase C — Apply the correction

7. With the load held, seat the tool tip on the contact point before building force.
8. Stand back and out of the line of force. Apply smooth, progressive push (load moving away from you) or controlled pull (you offset from its path), using stance and body weight behind the tool — never bracing the body into the load.
9. Make the move in small increments, checking alignment **visually** against datums between increments (per LG-SOP-002). No hand goes to the load to check by feel.
10. If the tool slips, the load shifts, or more force is needed than the tool gives: stop, re-seat or reposition the tool from a safe stance, or change to crane/re-rig. Never step in or lean in to force it.

Phase D — Final closure and handover

11. Once aligned, the load is closed under the Last 300 mm Rule™ — tool withdrawn to full extension or removed, no hand approaching, closure ordered through the signaller (LG-SOP-002, EE-SOP-001).
12. Hands approach the load only after it is landed, stable, and de-energised (slings slack).

10. PROHIBITED ACTIONS

- Standing in the pinch zone or close gap while applying a push/pull tool
 - Standing in the line of force behind a push, or in the path of a pull
 - Bracing, wedging, or leaning the body into the tool to add force
 - Using the push/pull tool as a pry bar, or levering it against a structure to multiply force
 - Placing a second hand on the load to "guide" or "steady" it while the tool is applied
 - Setting the tool tip on a smooth, sloped, or unstable point likely to slip
 - Standing between the load and a structure while pushing the load toward it
 - Applying a sudden shove rather than smooth, progressive force
 - Forcing a correction with the tool when it needs more force than normal push/pull — the correction belongs to the crane or a re-rig
 - Using a tool too short to keep the body clear of the pinch zone and line of force
-

11. STOP WORK CRITERIA

Force shall stop, the load shall be held ("HOLD"), and the method shall be reviewed when:

1. The only stance available for the correction is in the pinch zone, line of force, or between load and structure
2. The correction needs more force than the tool delivers in normal push/pull use
3. The tool slips off the contact point, or no positive contact point can be found
4. The worker is being pulled off balance, or has no escape route from the stance
5. The load shifts, swings, or moves unpredictably during the correction
6. The tool shows signs of over-load — flexing, deforming, or being levered against a fulcrum
7. A second hand is being used on the load, or anyone is in the line of force
8. Anyone — at any level — feels the urge to step in, lean in, or pry to finish the correction

The expected response is always the same: **hold the load, change the geometry or the method (crane or re-rig), resume from a safe stance.** A crane correction or a re-lift costs minutes. A worker in the pinch zone behind a slipping tool costs everything.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Hovering load 30 mm off target	Step into the gap, push with the tool from close in	Stand back; push from outside the pinch zone with the load moving away from you
Awkward tool angle from a safe stance	Move in close for a "better angle" and lean in	Reposition the contact point or take a longer tool; keep the stance back
Correction needs more force	Pry the tip under the load / lever against a column	Stop — make the correction by crane movement, or land and re-rig
Pulling a load toward target	Stand directly in the load's path and haul	Stand offset from the path, escape route behind, controlled pull only
Tool tip keeps slipping	Have a mate hold the load by hand to steady it	Find a positive contact point; if none, land and re-rig — no hand on the load

Situation	Wrong method	Preferred method
Pushing a load off a structure	Stand between load and structure to push it clear	Stand on the open side; push the load away from the structure and away from you
Load still drifting/swinging	Tool it onto target while it moves	Settle and orient by tagline first; correct only when held
Final closure with tool in the gap	Hand follows the tool in to "guide it"	Last 300 mm Rule™: tool reaches in, hand stays out, load closed with the load held

13. TOOLBOX TALK MESSAGE

Title: The tool is your distance — don't give it away

A push/pull tool is one of the best ways we have to make that last little correction without putting a hand on the load. The whole point of it is the length: it lets you stand back, out of the crush zone, and still move the load.

But here's the trap, and it catches good workers: the tool feels like a safety pass. "I'm using the tool, so I'm safe." So you step in for a better angle, you lean your weight into it, you get right up by the load — with a tool in your hands. And now? The pinch zone crushes you just the same. That tool in your hands doesn't stop the load. It only helps if you're standing where the load can't reach you.

Two things put you in danger even with the tool: standing **in the gap**, and standing **behind the force**. If that tip slips — and tips slip — the tool kicks back along the line you pushed. Stand out of that line. If you're pulling, don't stand where the load will come if it runs. Offset, with a way out behind you.

So the method:

- **Push from back, with the load moving away from you.** Pull from the side, never from in front. Smooth force, never a shove.
- **Seat the tip on something solid.** A real edge or face, not a smooth slope it'll skate off.
- **Never pry, never lever it against a column.** If it needs that much force, it's not a tool job — it's a crane job, or you land it and re-rig.
- **No second hand on the load. Ever.** The tool is the only thing that touches it.

And the rule that ties it together: the tool reaches into the danger so you don't have to. The second you step in to join it, you've thrown away the only thing it was giving you.

Ask the crew: *"When we tool a load into place, where do we stand — back and to the side, or right up at the gap?"* If the honest answer is "right up at the gap," that's the habit we fix.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, pinch zone hatched, line of force shown as a bold arrow, hand/contact points marked with a circle and arrow.

1. **Fig. 1 — Distance is the protection.** Worker standing well back, push/pull tool reaching across a hatched pinch zone to a hovering load; bold force arrow pointing away from the worker toward a clear path; tick. Caption "TOOL IN THE ZONE — WORKER OUT OF IT".
2. **Fig. 2 — Wrong method: stepping in.** Worker close to the load, leaning into the tool, body inside the hatched pinch zone and on the line of force; large cross. Ghosted inset of the correct back-stance, tick.

3. **Fig. 3 — Kickback.** Tool tip slipping off a smooth contact point; dashed arc showing the tool kicking back along the line of force; worker shown clear of that arc (right) vs in it (wrong, crossed).
 4. **Fig. 4 — Push vs pull geometry.** Two panels: PUSH (load moving away from worker, force arrow away from body, tick) and PULL (worker offset from the load's path, escape route arrow behind, tick); contrast inset of pulling from directly in front, crossed.
 5. **Fig. 5 — Not a pry bar.** Wrong: tool tip forced under the load / levered against a column, tool flexing, large cross. Right: tool seated on a positive face applying normal push/pull, with a note "MORE FORCE = CRANE OR RE-RIG".
 6. **Fig. 6 — Decision point.** Load nearly on target, worker beginning to step in for a "better angle"; thought-style callout "JUST LEAN IN?" struck through; arrow sequence: "HOLD → CHANGE TOOL ANGLE FROM BACK → OR CRANE / RE-RIG".
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15. HSF EXPOSURE PRINCIPLE

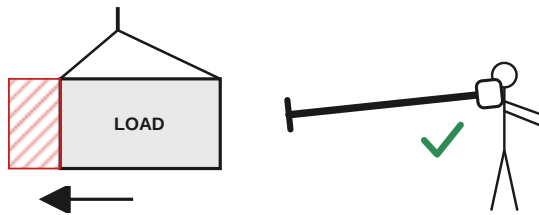
"The tool is an extension of distance, not a licence to stand in the load path."

ILLUSTRATION PACK — LG-SOP-004

LG-SOP-004 · PUSH/PULL LOAD CORRECTION

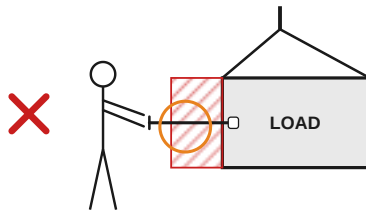
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — The tool reaches in so the worker does not



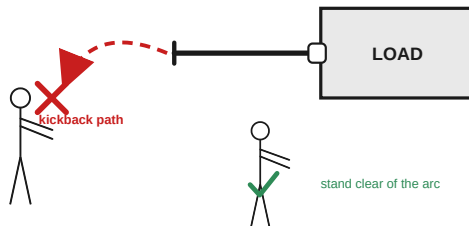
A push/pull tool puts rigid length between hands and load — force applied from outside the pinch zone.

Fig. 2 — The tool is no shield if you stand in the zone



Stepping in for a "better angle" puts the worker in the pinch zone and the line of force at once.

Fig. 3 — When the tip slips, the tool kicks back along the force



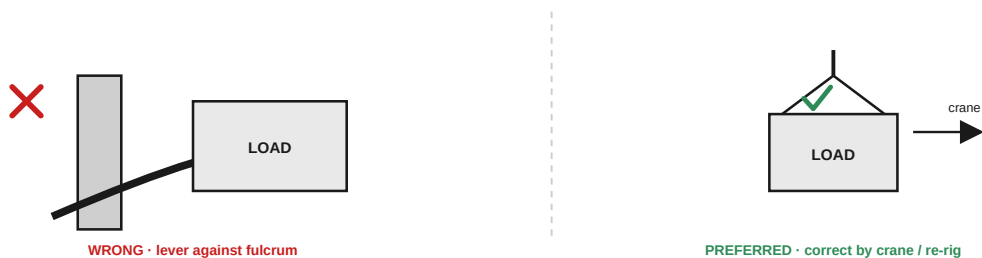
Keep the body out of the arc the tool would travel if the tip lets go; apply smooth, progressive force.

Fig. 4 — Push with the load moving away; pull from the side



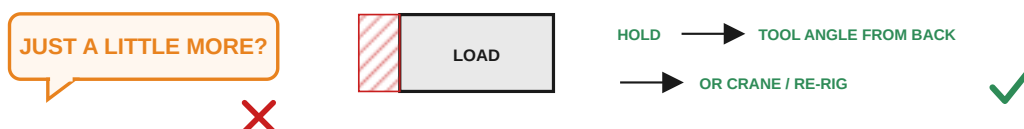
Push from a back stance; pull offset from the load's path with an escape route — never from directly in front.

Fig. 5 — If it needs more force, it is a crane job — not a pry bar



Never pry or over-lever the tool — if normal push/pull will not do it, the correction belongs to the crane.

Fig. 6 — "Just lean in" is the moment to change the method



An awkward angle from a safe stance is not the problem to solve by stepping in — change geometry or method.

LG — LOAD GUIDANCE

LG-SOP-005 · Tagline Use

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: LG-005 **Exposure Type:** Load Guidance — Distance Control by Tagline **Primary Hazard:** Loss of Distance Control (handler drawn toward the load) **Secondary Hazards:** Line-of-Fire Entry · Line Bight Entanglement · Hand/Wrist/Body Entrapment in the Line · Snag-and-Release Strike · Sail-Area Overload

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- LG-SOP-001 — Guiding Suspended Loads
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- LG-SOP-003 — Load Swing Control
- LG-SOP-004 — Push/Pull Load Correction
- DC-SOP-002 — Using Distance Creation Tools
- SZ-SOP-002 — Line-of-Fire Control
- SZ-SOP-003 — Exclusion Zones
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Distance Creation, Load Guidance, Line-of-Fire, Entanglement entries.

1. PURPOSE

This SOP establishes how taglines are used as a **distance-control method** for suspended loads — to control orientation and dampen swing while keeping the handler's hands away from the load.

It answers one question:

How do we use taglines to control load orientation and reduce hand exposure without creating new line-of-fire or entanglement hazards?

A tagline is the primary tool for keeping a hand off a live load. Used well, it lets a worker control a load's facing and movement from several metres away. Used badly, it becomes its own hazard: it pulls the handler into the load path, wraps a wrist, snatches on a snag, or drags a person off balance in the wind. This SOP is about getting the distance benefit without buying a new exposure.

The line is a control, not a connection to the load. If the load takes the line, let the line go.

2. EXPOSURE SUMMARY

A tagline works by putting rope between the worker and the load. The protection it provides is **distance** — and distance only exists while the handler keeps it. Every tagline injury comes from distance being lost: the handler is pulled in, wraps the line to get a better grip, stands where the line will sweep, or refuses to let go when the load takes over.

The exposure sequence:

1. The handler takes the tagline to control the load.
2. The load moves harder than expected — swing, crane input, wind, snag-release.
3. The line goes tight and pulls the handler toward the load path.
4. The handler resists by gripping harder, wrapping the line, or leaning back — committing themselves to the line.
5. The line now connects the worker to the load: it drags them into the line of fire, traps the hand or wrist, or pulls them off balance.

The failure is almost never the rope breaking. It is the handler treating the rope as a connection to hold onto rather than a control to manage and, if necessary, release.

Exposure mechanisms in this task: handler pulled into the load path or line of fire · hand/wrist/finger entrapped in a wrap or bight · jerk-load to the body from a snag suddenly releasing · drag and loss of balance from a sail-area load in wind · strike from a line whipping or sweeping · trip and fall over slack line on the ground.

Exposure Severity Matrix

Exposure	Potential Outcome
Tagline wrapped around hand or wrist when load pulls	Degloving / fracture / amputation
Handler pulled into the load path / line of fire	Crush / strike / fatality
Standing inside a line bight as it closes	Severe limb or body entrapment
Snag releases and jerk-loads the handler	Knockdown / pull into hazard
Sail-area load drags handler in wind	Loss of balance / fall / pulled into path

3. TYPICAL APPLICATIONS

This SOP applies wherever taglines are used to control a suspended load:

- Controlling orientation of loads during crane, gantry, and jib travel
- Dampening swing on loads in motion or in wind (with LG-SOP-003)
- Steering long loads — beams, pipe, tubulars, blades — that must keep a facing
- Bringing loads to a hover point on approach before final positioning
- Guiding loads through openings, between structures, and in and out of confined areas
- Over-side, deck-to-deck, and up-tower work where the handler must stay well clear of the load path

Industry / Work Area	Example Applications
Steel & Metal Plants	Orienting long bars, plate, and rolls through bays
Offshore / Oil & Gas	Controlling loads over-side and on deck in wind and motion
Wind Energy	Steering blades and large components, high sail area, long falls
Manufacturing	Keeping long fabrications oriented between stations
Shipyards & Ports	Turning and steering blocks and panels; container orientation
Maintenance Workshops	Orienting shafts, beams, and awkward components in tight bays

4. GUIDING, RESTRAINING, DAMPING, PULLING, DRAGGING — WHAT A TAGLINE DOES

(Task-specific doctrine section — retained as standalone field language.)

Crews use one word — "pull" — for five different actions. Three are correct tagline technique, one is a misuse, and one is a sign the handler has lost distance.

Guiding — applying light, steady tension to keep a load's orientation and direction during travel. *Correct.* This is the tagline's main job: continuous low force, handler well clear of the path.

Restraining — holding a load against a tendency to drift or turn (e.g. light wind, a slight off-CG). *Correct, within limits.* The line holds a steady, manageable force. If restraining requires the handler to brace hard or be pulled, the load is too much for the line and the task must stop.

Damping — taking energy out of a swinging load with smooth pulls timed to the swing (with LG-SOP-003). *Correct.* Energy removed over several cycles, working with the swing, never a single jerk against it.

Pulling — hauling on the line to physically move a heavy load toward the handler. *Misuse.* A tagline is for orientation and swing, not for dragging mass. Hauling a load toward yourself brings the load into your line of fire and invites the load to overrun the handler. Position changes are made by crane and, at the hover, by push-pull tool (LG-SOP-004).

Dragging — the load pulling the handler, rather than the handler controlling the load. *Failure state.* The moment the handler is being moved by the line, distance control is lost. The response is to release the line, not to grip harder.

The discipline in one line: **guide, restrain, and damp with the line — never let the line haul the load to you, and never let the load drag you to it.**

5. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

With taglines, the decision point arrives when the line alone isn't quite achieving the control the handler wants. The load is drifting or turning, the line is slipping through the hands, and the handler judges that a firmer hold will fix it. The thought runs:

"The line's slipping — I just need a better grip. One wrap around my hand, or take a step closer for a

better angle, and I've got it. Just a little more hold."

This is the most dangerous instinct in tagline work, because both "solutions" destroy the protection the line provides. A **wrap** converts the line from something the handler can release into something attached to the handler — when the load pulls, the hand goes with it. **Stepping closer** trades away the distance that is the entire point of the line, putting the handler back in the load path the tagline was meant to keep them out of.

The line slipping is not a problem to overpower. It is information: the load is applying more force than the handler can hold from a safe position. The answer is never more grip — it is less load on the line.

The rule at the decision point:

When a tagline starts to slip or pull, the handler reduces the load on the line — never their distance from the load or their ability to let go. A line you cannot hold from a safe position with an open hand is a line that is about to control you.

The alternative method at the decision point:

1. **Reduce the demand on the line.** Call "HOLD" on crane movement — most excess line force comes from the load still being driven. A stopped load is far easier to hold.
2. **Improve the angle or add a hand, not a wrap.** Take a better line angle for leverage, or bring in a second handler or second tagline. Never wrap the line on the hand, wrist, or body.
3. **If the load still overpowers the line:** let the line go and step clear along the escape route. Land the load, re-plan the rigging, taglines, or wind exposure. A dropped tagline is recoverable; a handler dragged into the load path is not.

6. KEY EXPOSURE PRINCIPLE

A tagline creates distance only while the handler stays out of the load path and out of the line bight, holds the line with an open hand that can release instantly, and never wraps it around hand, wrist, or body. The line controls the load; it does not connect the handler to it.

The instant the line stops being something the handler manages from a distance and becomes something holding the handler to the load, the tagline has failed as a control and become a hazard.

7. PRACTICAL FIELD INDICATORS OF UNSAFE TAGLINE USE

Supervisors and signallers shall treat the following as visible warning signs:

- A line wrapped, looped, or hitched around a hand, wrist, forearm, or body
- A handler standing inside a bight (a loop or curve of slack line that can close)
- A handler in line with the load path — on the chord the load will swing or travel across
- A handler being pulled, dragged, or leaning hard against the line to hold the load
- A handler hauling a load toward themselves on the line
- Slack line coiled around the feet or trailing where it can snag or trip
- A line running across or under the load where it can foul, or attached to the sling/hook instead of the load
- A line too short to keep the handler outside the fall zone and swing arc at full lift height
- In wind: a handler being walked or unbalanced by a sail-area load on the line

Each indicator means the distance the line is supposed to create has been compromised and shall be corrected before the load moves further.

8. REQUIRED CONTROLS

Attachment

- Taglines attached to the **load** at designated points — never to the sling legs, hook, or rigging hardware
- Attached **before lift-off**, while the load is on the ground; never attached or re-attached to an airborne load by hand
- Attached low enough on the load to give orientation control, high enough to clear ground snags; two lines on opposite points for long loads and any load needing rotation control

Line and length

- Line of a length that keeps the handler outside the fall zone and swing arc through the **full** lift height — a tagline that is long enough on the ground may be far too short at height
- Soft, hand-friendly line of adequate strength; free of knots, stiff kinks, frayed sections, and pre-formed loops that can become bights
- Excess line flaked or figure-of-eighted in the hand or laid clear — never coiled around the hand, wrist, or feet

Handler position and technique

- Handler positioned **off** the load path: outside the swing arc, outside the line of fire, never on the chord the load travels or swings across, never between the load and a structure
- Line held in **open hands** that can release instantly; the line is never wrapped, hitched, or tied to any part of the body
- Steady, light tension for guiding; smooth rhythmic pulls for damping; no hauling of mass toward the handler
- Line angle chosen for leverage from a safe stance — a shallow angle from far enough back, not a steep angle from close in

Wind and sail-area loads

- For large flat loads in wind, line forces can exceed what a handler can hold; assess before lift-off (see the Swing Prevention Check in LG-SOP-003)
- Use additional handlers/lines, reduce sail exposure, reorient, or postpone — never let a single handler be dragged by a sail-area load
- If wind makes the line unholdable from a safe position, the load does not fly

When taglines are not the right control / must be released

- Taglines are **not** for moving load mass, final positioning (use LG-SOP-004 / LG-SOP-002), or replacing a balanced pick
- Taglines are **not** useful where there is no safe handler position clear of the path, or where lines would foul structures through the travel
- The line **must be released** the moment the load begins to drag the handler, a wrap or bight starts to close, a snag jerk-loads the line, or the handler's balance or safe position is lost. Releasing the line is the correct action, not a failure.

9. SAFE WORK PROCEDURE

Phase A — Before lift-off

1. Attach taglines to designated points on the load, on the ground, before the lift. Confirm length keeps the handler clear of the fall zone and swing arc at full height.
2. Lay or flake the line so there is no coil around feet, hands, or bights underfoot.
3. Confirm handler positions off the load path, the signaller and one voice, and each handler's escape route.
4. For flat or large loads, confirm wind is acceptable for the line force a handler can safely hold.

Phase B — Lift-off and travel

5. Take up light line tension as the load lifts and hangs true. Hold the line in open hands. No wraps, ever.
6. Guide with steady, light tension; keep position off the path as the load travels; pay line in or out by sliding through open hands, never by reeling it onto the hand.
7. Keep slack managed and clear of the feet. Move with the load while staying outside the arc — never walk on the chord, never walk backwards into unseen ground.

Phase C — Damping and orientation

8. To dampen swing, stop crane input first, then ease energy out with smooth pulls timed with the swing, from outside the arc (LG-SOP-003).
9. To correct orientation, apply line tension or use a two-line couple; do not haul the load toward yourself.
10. If the line slips or pulls hard: reduce the demand (HOLD the crane), improve the angle, or add a hand — never wrap, never step into the path.

Phase D — Approach and handover

11. Bring the load to the hover point under line control, swing settled.
12. At the hover, hand over to LG-SOP-002 for final positioning; the Last 300 mm Rule™ applies. Taglines continue to provide orientation from distance while tools make the final correction; no hand goes to the load.

Release

13. At any point, if the load takes the line — drags the handler, jerks from a snag, or threatens a wrap or bight — **let the line go and step clear along the escape route.** Recover the line only when the load is still and safe.

10. PROHIBITED ACTIONS

- Wrapping, looping, hitching, or tying a tagline around the hand, wrist, forearm, shoulder, or any part of the body
 - Standing inside a bight, loop, or curve of line that can close
 - Standing on, or walking along, the load path / swing chord / line of fire while holding the line
 - Hauling a load toward yourself on the tagline to reposition it
 - Holding on to a line that is dragging you, instead of releasing it
 - Attaching a tagline to the sling, hook, or rigging instead of the load
 - Attaching, re-attaching, or freeing a tagline on an airborne load by hand
 - Using a line too short to keep the handler clear at full lift height
 - Allowing slack line to coil around the feet or trail where it can snag or trip
 - Letting one handler be dragged or unbalanced by a sail-area load in wind
-

11. STOP WORK CRITERIA

Load movement shall stop ("HOLD"), the line shall be released if it is pulling the handler, and the method shall be reviewed when:

1. A handler is being pulled, dragged, or unbalanced by the line
2. A line is wrapped on the body, or a bight is closing around a hand, foot, or limb
3. A handler has moved onto the load path, swing chord, or line of fire to manage the line
4. A snag in the line releases and jerk-loads the handler, or a snag cannot be cleared from a safe position
5. Wind makes a sail-area load unholdable from a safe position
6. The line is too short, fouling structures, or attached to rigging rather than the load
7. No safe handler position clear of the path is available for the next stage of travel
8. Anyone — at any level — feels the urge to wrap the line or step closer for "a better hold"

The expected response is the same throughout: **release the line if it is pulling you, stop the load, restore a safe position and proper line setup, resume.** A released or re-rigged tagline costs minutes. A handler attached to a moving load costs everything.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Line slipping through the hands	Wrap it around the hand or wrist for grip	HOLD the crane to reduce line force; improve angle; add a second handler — open hands only
Load drifting, line going tight	Lean back and hold on hard	If it's dragging you, let it go and step clear; land and re-rig if needed
Need to reposition the load	Haul it toward you on the tagline	Reposition by crane; at the hover, correct by push-pull tool (LG-SOP-004)
Long load needs to keep facing	One line, gripped tight, handler close	Two lines on opposite points, light tension, handlers well back off the path
Excess line in hand	Coil it around the hand/forearm	Flake or figure-eight it in the open hand, or lay it clear
Line snagged on structure mid-travel	Yank it free	HOLD; clear the snag from a safe position or land the load; never yank a loaded line
Flat load in gusty wind	One handler braces against the drag	Add handlers/lines, reduce sail exposure, reorient, or postpone; never be dragged
Tagline too short at height	Stretch up / move under the load to reach	Stop; fit a line long enough to stay clear at full height before lifting

13. TOOLBOX TALK MESSAGE

Title: The line is a control, not a handle

A tagline is one of the best tools we have for keeping a hand off a live load. It lets you steer a load and take swing out of it from metres away. But it only protects you while you treat it as a control you manage — not a handle you hold onto no matter what.

Here's where it goes wrong. The line starts to slip, the load's pulling, and your instinct says "get a better grip." So you take a wrap around your hand. Now think about what you've done: a second ago the line was something you could drop in an instant. Now it's tied to you. When that load decides to go — a gust, a swing, the crane moving — your hand goes with it. Wraps are how taglines take fingers.

Same with stepping in for a better angle. The whole point of the line is the distance between you and the load. Step into the path and you've given that distance away.

So the rules don't change:

- **Open hands, always.** No wraps, no loops, no line around any part of you. Slide it through your hands; never reel it onto them.
- **Stay off the path.** Out of the swing arc, out of the line of fire, never on the line the load travels or swings across. Watch for bights — never stand in a loop of line that can close.
- **Don't haul the load to you.** The line is for facing and swing, not for dragging weight. Move the load with the crane.
- **And the big one: if the load takes the line, let the line go.** A dropped rope you pick up in a minute. There is nothing on the end of that line worth being dragged into the load path for.

Ask the crew: *"When a load pulls hard on the line, what's our instinct — hold tighter, or let go?"* If the honest answer is "hold tighter," that's the reflex we're here to retrain.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, hazard zones hatched, load path / swing arc shown dashed, hand/line contact points marked with a circle and arrow.

1. **Fig. 1 — Distance is the protection.** Plan view: load with two taglines to handlers standing well back, off the dashed load path, outside the hatched swing arc; tick. Caption "OPEN HANDS · OFF THE PATH".
2. **Fig. 2 — Wrong method: the wrap.** Close detail of a line wrapped around a hand/wrist; load-pull arrow drawing the hand toward the load; large cross. Inset: correct open-hand hold with line sliding through, tick.
3. **Fig. 3 — The bight.** Handler standing inside a loop of slack line on the ground; arrow showing the bight closing around the ankle as the line goes tight; large cross. Inset: line flaked clear of the feet, tick.
4. **Fig. 4 — On the path vs off the path.** Two panels: (wrong) handler on the swing chord / line of fire, load swinging toward them, crossed; (right) same load, handler offset outside the arc with a shallow line angle, ticked.
5. **Fig. 5 — Attachment and length.** Load with tagline attached to a low load point (tick) vs attached to the sling/hook (cross); side view showing the line length keeping the handler clear at full lift height, with a "too short at height" ghosted comparison.
6. **Fig. 6 — Decision point.** Line slipping through a handler's hands, load drifting; thought-style callout "JUST TAKE A WRAP?" struck through; arrow sequence: "HOLD CRANE → BETTER ANGLE / SECOND HAND → OR LET THE LINE GO".

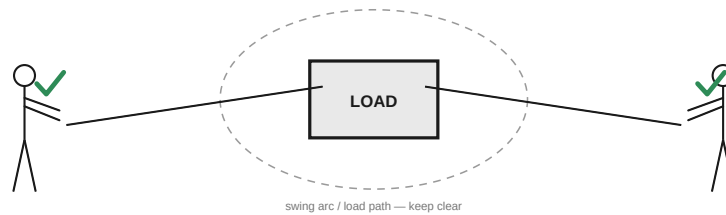
15. HSF EXPOSURE PRINCIPLE

"The line is a control, not a connection to the load. If the load takes the line, let the line go."

LG-SOP-005 · TAGLINE USE

Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — Open hands, off the path: the line creates distance



The line protects only while the handler keeps distance — outside the path, hands open.

Fig. 2 — A wrap turns the line into a connection to the load



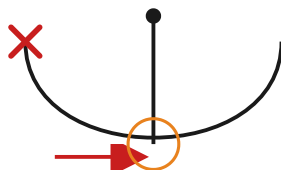
WRONG · line wrapped on the hand

Never wrap, loop or hitch the line on hand or wrist — hold it in open hands that can release instantly.



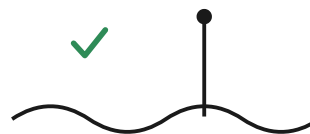
PREFERRED · open hand, line slides

Fig. 3 — Never stand in a loop of line that can close



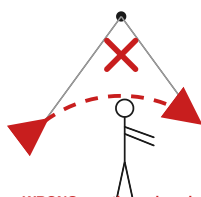
WRONG · standing in the bight

A bight closing around an ankle is entrapment — keep slack line flaked clear, never coiled at the feet.



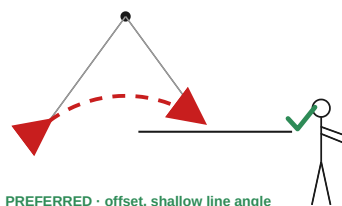
PREFERRED · line flaked clear of feet

Fig. 4 — Stand off the line the load travels or swings across



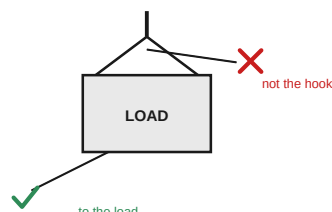
WRONG · on the swing chord

Keep out of the swing arc and line of fire — take a shallow line angle from well back, not the chord.

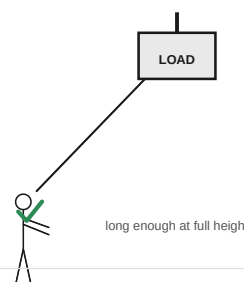


PREFERRED · offset, shallow line angle

Fig. 5 — Attach to the load, long enough to stay clear at height



Attach to the load, not the rigging; line long enough to keep the handler clear of fall zone at full lift height.



long enough at full height

Fig. 6 — "Just take a wrap" is the moment to let the line go

JUST A LITTLE MORE?



HOLD CRANE

BETTER ANGLE / SECOND HAND

A slipping line means the load exceeds a safe hold — reduce the load on the line, never your ability to release.

SH — SLING HANDLING

SH-SOP-001 · Sling Placement

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: SH-001 **Exposure Type:** Sling Handling — Placement Before Lift **Primary Hazard:** Hand in Pinch Zone / Under Load While Placing Slings **Secondary Hazards:** Reach Under Unsupported Load · Hand Fed Through a Closed Gap · Load Shift During Placement · Trapped-Sling Problem Created for De-rig

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- SH-SOP-002 — Sling Removal
- SH-SOP-003 — Shackle Handling
- SH-SOP-004 — Hook Engagement
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- DC-SOP-002 — Using Distance Creation Tools
- DC-SOP-003 — Magnetic Positioning Methods
- DC-SOP-004 — Remote Retrieval Methods
- SZ-SOP-001 — Fall Zone Management
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Sling Handling, Closing Gap, Distance Creation, Stored Energy entries.

1. PURPOSE

This SOP establishes how slings are placed around, under, through, or onto a load **before the lift** — without putting hands into pinch zones, under unstable loads, or between the load and its support surface.

It answers one question:

How do we place slings so the load can be lifted safely without using hands under the load, reaching into trapped spaces, or creating removal problems after landing?

Sling placement is where the hand exposure of a lift is decided — long before the load is airborne. The worker who slides a hand under a resting load to feed a sling, who pushes a strap into a closed gap by feel, or who improvises a sling path because none was planned, is exposed to crush from a load that can shift, settle, or roll.

And the way a sling is placed determines whether it can be removed safely after landing (SH-SOP-002): a sling fed into a trapped space at placement becomes a trapped sling — and a hand reaching in — at de-rig.

Placement and removal are two ends of one decision. This SOP requires both to be planned together.

The governing idea:

A sling path must be created before the hand tries to create it.

2. EXPOSURE SUMMARY

A load at rest is not a safe load. It sits on a surface or dunnage, and the space beneath and beside it is a pinch zone the moment the load shifts, settles, rolls, or is disturbed. Sling placement puts the worker's hands into exactly that space — under the load, through gaps, between the load and its support — to route the rigging.

The exposure sequence:

1. The load is resting and a sling must be routed under or through it.
2. No clear sling path exists, so the worker reaches under the load or feeds the sling into a closed gap by hand.
3. The hand is now in the pinch zone beneath or beside the load.
4. The load shifts — disturbed by the worker, settling on soft ground, rocking on uneven dunnage, or rolling — or a partial lift takes weight unevenly.
5. The hand is crushed under the load, pinched in the gap, or caught as the load moves.

The placement is also a trap set for later: a sling forced into a space with no clearance cannot be removed cleanly after landing, so the de-rig crew faces a trapped sling and the temptation to reach in (SH-SOP-002). The exposure created at placement is paid twice.

Exposure mechanisms in this task: hand crushed under a load that shifts or settles during placement · pinch between load and support surface while feeding a sling · hand fed into a closing gap with no clearance · finger caught as a sling is forced through a tight space · load roll or tip when disturbed for sling routing · creation of a trapped-sling hazard for de-rig.

Exposure Severity Matrix

Exposure	Potential Outcome
Hand under a resting load while feeding a sling	Crush injury / amputation if load shifts
Hand in the gap between load and support surface	Finger/hand crush
Feeding a sling through a closed gap by hand	Pinch / entrapment
Load rolls or tips while being disturbed for placement	Severe crush / fatality
Sling placed with no removal clearance	Trapped-sling hazard transferred to de-rig (SH-SOP-002)

3. TYPICAL APPLICATIONS

This SOP applies to placing slings, straps, chains, and rigging on any load before lifting:

- Routing slings under flat-bottomed loads resting on a surface or dunnage

- Passing slings through openings, lifting points, and around structures
- Placing chokers and basket hitches around coils, pipe, billets, and bundles
- Rigging machinery, fabrications, and equipment with defined lifting points
- Slinging stacked, racked, or close-packed materials
- Re-slinging a load for turning or re-orientation

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Slinging coils, slabs, plate, and bundles resting on the floor or skids
Offshore / Oil & Gas	Rigging skids and equipment on deck; routing slings on close-packed cargo
Wind Energy	Slinging bedplates and large components with defined pick points
Manufacturing	Rigging engines, pumps, and dies on baseplates and pallets
Shipyards & Ports	Slinging blocks, panels, and containers; basket hitches on pipe and section
Maintenance Workshops	Re-slinging gearboxes and components for turning; routing under bench-set loads

Sling placement is the **start** of the lift sequence. How it is done sets up safe lifting (LG-SOP series) and safe removal (SH-SOP-002). All three are planned together.

4. PLANNED, HAND-FED, FORCED, IMPROVISED — THE FOUR PLACEMENT METHODS

(Task-specific doctrine section — retained as standalone field language.)

There is one safe way to place a sling and three ways that put a hand in the pinch zone. Naming them lets a crew judge the method before the hand moves.

Planned placement — the sling path is created before the lift, using dunnage, lifting points, or a tool, so the sling routes through clearance and the hand never enters a pinch zone. *The only correct method.* The clearance exists first; the sling follows it; the hand stays out of any gap.

Hand-fed placement — the worker feeds a sling under or through a load by hand because some clearance exists but no planned path does. *Misuse.* "Some room" is not safe room. Hand-feeding puts fingers into a gap that closes if the load shifts, and it relies on the load not moving — which is never guaranteed for a resting load.

Forced placement — pushing or working a sling into a tight or closed gap by hand. *Failure state.* If the sling must be forced, there is no clearance, and the hand is in a closing gap. A forced placement also guarantees a trapped sling at de-rig.

Improvised placement — routing the sling whatever way seems to work in the moment, with no plan for the path or the later removal. *Failure state.* Improvisation is how hands end up under loads and how trapped-sling problems are created. If the path was not planned, the placement is not ready.

The discipline in one line: **create the path first and the sling follows it — never hand-feed, force, or improvise a sling around a resting load.**

5. PLAN THE PLACEMENT AND THE REMOVAL TOGETHER

A sling is placed once and removed once, and the same clearance serves both. This SOP requires that **at the time of placement, the removal is planned:**

- The clearance that lets a sling be routed without a hand in the pinch zone is the same clearance that lets it be removed without a hand in the pinch zone after landing (SH-SOP-002).
- Dunnage and blocking are positioned so the load lands with the slings **accessible and free**, not pinned under full weight.
- Sling type, hitch, and routing are chosen so the sling will pull free clean after landing — a sling that can only be placed by force will only come out by force.
- The landing orientation and de-rig positions are anticipated now, so the crew is not solving a trapped-sling problem later.

The link to the Last 300 mm Rule™ (EE-SOP-001): the gap beneath a resting load is a closing gap waiting for the load to move. No hand enters it to place a sling, exactly as no hand enters a closing gap during a lift. The control is the same — create distance with a tool or with dunnage, never with the hand.

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

The decision point in sling placement arrives when the sling is **almost** routed. It is most of the way under the load, or nearly through the gap, and just needs a final push to come out the other side where it can be reached. There is "a bit of room." Going to get a tool, or jacking the load to make proper clearance, feels like overkill for the last hand-width. The worker thinks:

"It's nearly through, there's a bit of a gap — I'll just push it the rest of the way and grab it. One reach. Just a little more."

The trap is "a bit of room." The gap under a resting load is not stable space — it is space the load can close at any moment by settling, rocking on its dunnage, or shifting as the sling is worked. The worker's hand is in that gap precisely when the sling is being moved, which is precisely when the load is most likely to be disturbed. And the same reach that finishes the placement creates the trapped sling that the de-rig crew will face later.

A sling that needs the hand to finish routing it has no planned path. That is the signal to create one — not to reach in.

The rule at the decision point:

A sling that cannot be routed without a hand in the gap has no safe path, and the answer is to create the path — with a tool, with dunnage, or by lifting the load — never to push the sling through by hand. The smaller the remaining gap, the closer the closing gap, and the more disciplined the no-hand response must be.

The alternative method at the decision point:

1. **Stop reaching.** If the sling will not route without a hand in the gap, the placement is not ready.
 2. **Create the path with distance, not the hand.** Use a sling passer, push rod, retrieval hook, guide wire, or magnet (DC-SOP-002/003/004) to route or recover the sling through the gap from outside it.
 3. **If no tool can route it safely, change the load's support.** Jack, block, or take a controlled lift to open real clearance, place the sling through the created gap, then set the load down on dunnage that preserves that clearance for removal. If none of this can be done safely, stop and re-plan the rig.
-

7. PRACTICAL FIELD INDICATORS OF UNSAFE SLING PLACEMENT

Supervisors and riggers shall treat the following as visible warning signs:

- A hand or arm reaching **under** a resting load to route or feed a sling
- A hand feeding a sling into the gap between the load and its support surface
- A sling being pushed or forced into a tight or closed gap by hand
- A worker disturbing, rocking, or part-lifting a load by hand to slip a sling under it
- A sling routed "whatever way works" with no apparent plan for the path
- No dunnage, blocking, or clearance created before placement begins
- A worker kneeling or lying at the load edge, hand and head near the gap, to feed a sling
- A placement that will clearly leave the sling pinned under the load at landing (a trapped-sling problem in the making)
- Sling passers or retrieval tools available but unused while hands do the work

Each indicator means the sling path was not created before the hand moved, and the placement has slipped into a pinch-zone hazard.

8. REQUIRED CONTROLS

Planning controls — before any hand approaches the load

- The sling path planned for every sling: how it routes, where it exits, and how the hand stays out of every pinch zone
- The **removal** planned at the same time (§5): clearance and dunnage chosen so the sling is free and accessible after landing (SH-SOP-002)
- Dunnage, stools, or blocking positioned to create the clearance the sling routes through — the dunnage makes the gap, not the hand
- Lifting points, slots, and openings used where they exist, so slings need not be fed under the load at all

Distance-control equipment for routing

- Sling passers, push rods, and guide wires to route a sling through a gap from outside it (DC-SOP-002)
- Retrieval hooks to draw a sling through and recover its end without reaching in (DC-SOP-004)
- Magnets or magnetic guides where appropriate to position or retrieve sling ends on ferrous loads (DC-SOP-003)
- The principle: the tool enters the gap; the hand does not

Changing the load's support to create a path

- Where no safe sling path exists at rest, the load is **jacked, blocked, lifted, or re-oriented** under control to open real clearance before the sling is placed
- A controlled slight lift to pass slings is treated as a lift: signaller in control, one voice, hands clear, load held — and no hand goes under the **raised** load either (a raised load is a suspended load; LG SOPs apply)
- After placement, the load is set down on dunnage that preserves the clearance for removal

Body position

- Worker positioned outside the pinch zone and clear of the load's roll, tip, and settle directions throughout
- No part of the hand, arm, or body under the load or in the gap between load and surface at any time
- Stable stance with an escape route; never kneeling or lying with a limb committed under the load

When there is no safe sling path

- If a sling cannot be placed without a hand in a pinch zone, and no tool or support change can create a safe path, the task **stops** and the rig is re-planned. There is no version of "no safe path" that justifies a hand under the load.
-

9. SAFE WORK PROCEDURE

Phase A — Plan the path and the removal

1. For each sling, plan the route (under, through, around, onto) and confirm the hand stays out of every pinch zone.
2. Plan the removal now: confirm the clearance and dunnage will leave the sling free and accessible after landing (SH-SOP-002).
3. Choose lifting points and openings where they exist, to avoid routing under the load.

Phase B — Create the clearance

4. Position dunnage, stools, or blocking to create the gap the sling will route through — before any hand approaches.
5. If the resting load offers no safe clearance, jack, block, lift, or re-orient it under control to create one. Treat any lift as a lift: hands clear, load held, no hand under the raised load.

Phase C — Place the sling using distance

6. Route the sling through the created clearance using a sling passer, push rod, guide wire, retrieval hook, or magnet — the tool enters the gap, the hand stays out.
7. Recover the sling end from outside the gap with a retrieval hook; do not reach through to grab it.
8. Seat the sling on its lifting points or in its hitch from a position outside the pinch zone, body clear of the load's roll and tip directions.

Phase D — Confirm and hand over to the lift

9. Confirm the sling is correctly placed, seated, and routed so it will lift clean and remove clean.
 10. Confirm no hand was needed in any gap; if a hand was tempted in, the path was not adequate — fix it before lifting.
 11. Hand over to the lift sequence (LG-SOP-001 onward). Final landing and the eventual removal follow LG-SOP-002 and SH-SOP-002, using the clearance planned here.
-

10. PROHIBITED ACTIONS

- Reaching under a resting or unsupported load to route or feed a sling
 - Feeding a sling into the gap between the load and its support surface by hand
 - Pushing or forcing a sling into a tight or closed gap by hand
 - Disturbing, rocking, or part-lifting a load by hand to slip a sling underneath
 - Improvising a sling route with no plan for the path or for later removal
 - Placing a sling in a way that will leave it trapped under the load at landing
 - Reaching under a **raised** load to place or recover a sling (a raised load is a suspended load)
 - Kneeling or lying with a hand, arm, or limb committed under the load
 - Proceeding when no safe sling path exists, instead of re-planning the rig
 - Leaving sling passers or retrieval tools unused while hands do the routing
-

11. STOP WORK CRITERIA

Sling placement shall stop, hands shall be kept clear, and the method shall be reviewed when:

1. A sling cannot be routed without a hand in a pinch zone or under the load
2. No clearance exists and none has been created by dunnage or a controlled lift
3. The sling must be forced or improvised into place
4. The load shows any tendency to roll, tip, or settle when approached or disturbed
5. The planned placement would leave the sling trapped for de-rig (SH-SOP-002)
6. A routing tool is needed but not available
7. The only available body position is under the load or in the gap
8. Anyone — at any level — feels the urge to "just push it through" or "just reach under and grab it"

The expected response is always the same: **create the path with a tool or with dunnage, change the load's support under control, or re-plan the rig.** Creating clearance costs minutes. A hand under a load costs everything.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Flat load resting on the floor, sling needed underneath	Slide a hand under to feed the sling	Set the load on dunnage first (or jack/block it) so the sling routes through clearance
Sling nearly through a gap, end out of reach	Push it through by hand and grab the end	Sling passer / push rod to route it; retrieval hook to recover the end from outside
Load on uneven dunnage, "a bit of room" underneath	Reach into the bit of room to route the sling	Stop — unstable gap; re-block the load to create stable clearance, then route by tool
Heavy load with no clear sling path	Rock the load by hand and slip the sling under	Controlled lift on the crane to open clearance, place sling, set down on dunnage
Ferrous load, sling end to be positioned in a gap	Reach in to position the end	Magnet / magnetic guide to position or recover the end from outside (DC-SOP-003)
No planned path, deadline pressure	Improvise a route that "works for now"	Plan the path and the removal first; no placement until the path is created
Sling routed but will be pinned at landing	Place it anyway, sort removal later	Re-route or re-dunnage now so the sling lands free (SH-SOP-002)
Raised load on the hook, sling to be placed under	Reach under the raised load to place it	Treat as suspended; set down on dunnage, place sling from outside the pinch zone

13. TOOLBOX TALK MESSAGE

Title: Make the path before your hand makes it

Every crushed hand in slinging starts the same way: there was no clear path for the sling, so a hand made one. Reached under the load. Fed the strap into a gap. Pushed it through "where there's a bit of room."

Here's the problem with "a bit of room": the gap under a resting load isn't stable space. The load can settle, rock on its dunnage, or roll — and it's most likely to move at the exact moment you're working a sling under it, because you're the one disturbing it. Your hand's in the gap right when the gap wants to close.

And it bites you twice. A sling you had to force under the load is a sling that'll be trapped when you land it — so now the de-rig crew faces the same gap, the same reach, the same crush. The way you place the sling decides how dangerous it is to take off.

So the method is simple, and it's all before the hand moves:

- **Plan the path.** How does each sling route, and how does it come out clean at the end?
- **Create the clearance first.** Dunnage makes the gap, not your fingers. No room? Jack it, block it, or take a controlled lift to make room.
- **Let the tool go in the gap.** Sling passer, push rod, retrieval hook, magnet — the tool reaches through, your hand stays out.
- **Plan the removal while you place it.** The clearance that gets it in safe gets it out safe.

And the one rule under all of it: if a sling won't go without your hand in the gap, it has no safe path yet. Make the path. Don't be the path.

Ask the crew: *"On our jobs, where do we end up reaching under a load to sling it — and what dunnage or tool removes that reach?"* Name those lifts. Fix them at the plan, not at the gap.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, pinch zone / gap hatched, hand entry point marked with a circle and arrow.

1. **Fig. 1 — Create the path first.** Load set on dunnage with a clear gap beneath; sling routing through the gap with clearance all around; hand seating the sling from outside the pinch zone; tick. Caption "DUNNAGE MAKES THE GAP — NOT THE HAND".
2. **Fig. 2 — Wrong method: the reach-under.** Worker's arm under a flat load resting on the floor, feeding a sling; gap hatched as a crush zone; hand circled, large cross.
3. **Fig. 3 — Tool in the gap.** Sling passer / push rod routing a sling through a gap, retrieval hook recovering the end from the far side, worker's hands outside the gap at both ends; tick. Inset of a hand pushing the sling through, crossed.
4. **Fig. 4 — Create clearance by lifting.** Two panels: (left) no path under a resting load, crossed; (right) controlled slight lift opens real clearance, sling placed, load then set on dunnage; tick. Note "RAISED LOAD = SUSPENDED LOAD — NO HAND UNDER IT".
5. **Fig. 5 — Placement decides removal.** Split image: a sling routed through dunnage clearance (lands free, tick) vs a sling forced under the load (lands trapped, links to SH-SOP-002, crossed).
6. **Fig. 6 — Decision point.** Sling nearly through a gap, worker's hand reaching to push it the last bit; thought-style callout "JUST PUSH IT THROUGH?" struck through; arrow sequence: "STOP → TOOL THROUGH THE GAP → OR BLOCK / LIFT TO MAKE THE PATH".

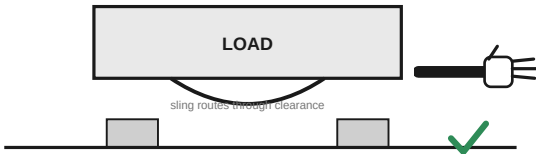
15. HSF EXPOSURE PRINCIPLE

"A sling path must be created before the hand tries to create it. Plan the sling path before the lift, and plan the sling's escape before the landing."

SH-SOP-001 · SLING PLACEMENT

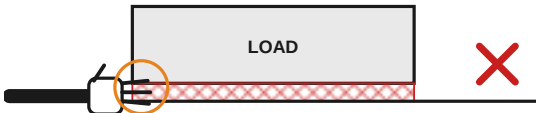
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — Dunnage makes the gap, not the hand



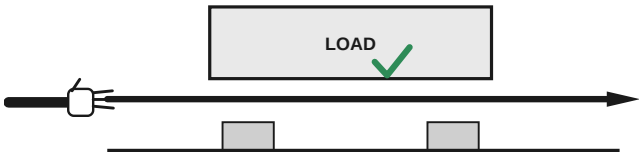
Set the load on dunnage so the sling routes through clearance — the dunnage creates the gap, never the hand.

Fig. 2 — Reaching under a resting load is in the crush zone



A hand under a resting load is in a gap that closes if the load settles, rocks or rolls while the sling is worked.

Fig. 3 — Let the tool route the sling through the gap



A sling passer or push rod routes the sling and a retrieval hook recovers the end — the tool enters the gap, not the hand.

Fig. 4 — No path? Lift to create one — never reach under



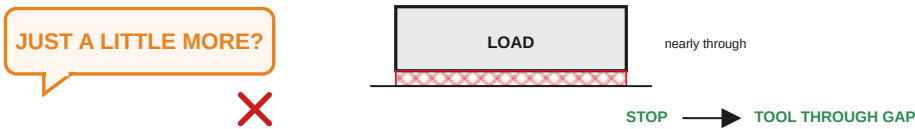
Jack, block or take a controlled lift to open real clearance — a raised load is suspended, so no hand under it.

Fig. 5 — How you place it decides how safe it lands



Plan the removal as you place: clearance that gets the sling in safe gets it out safe; forced in means trapped later.

Fig. 6 — "Just push it through" is the moment to make the path





OR BLOCK / LIFT TO MAKE PATH

A sling that will not route without a hand in the gap has no safe path — make the path, do not be the path.

SH — SLING HANDLING

SH-SOP-002 · Sling Removal

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: SH-002 **Exposure Type:** Sling Handling — Removal After Landing **Primary Hazard:** Hand Trapped Between Load and Surface (sling still bearing or load unstable) **Secondary Hazards:** Reach Under Unstable Load · Pinch in Trapped Rigging Path · Snap-back / Whip on Forced Release · Load Shift on De-rigging

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- SH-SOP-001 — Sling Placement
- SH-SOP-003 — Shackle Handling
- SH-SOP-004 — Hook Engagement
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- DC-SOP-002 — Using Distance Creation Tools
- DC-SOP-004 — Remote Retrieval Methods
- SZ-SOP-001 — Fall Zone Management
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Sling Handling, Closing Gap, Distance Creation, Stored Energy entries.

1. PURPOSE

This SOP establishes how slings are removed from a load **after landing** — without reaching under the load, pulling rigging from a pinch gap, or freeing trapped slings by hand.

It answers one question:

How do we remove slings without reaching under a load, pulling from the pinch zone, or freeing trapped rigging by hand?

Sling removal feels like the safe part of the lift. The load is down, the crane has done its work, the pressure is off. That false sense of completion is exactly when hands go where they should not — under the load to free a sling, into the gap between the load and the dunnage to pull a strap, or hauling on a trapped sling that suddenly

releases. The load is landed, but the slings can still be bearing weight, the load can still be unstable, and the rigging can still be in a path that crushes a hand.

This SOP draws the line clearly: **a sling is removed only after the load is stable and the sling is free.** Anything else is not a removal task.

The governing idea:

Never trade a trapped sling for a trapped hand.

2. EXPOSURE SUMMARY

The hazard in sling removal is that the load looks finished while three conditions may still be live: the sling may still be carrying weight, the load may not be stable, and the rigging may be trapped in a gap that crushes whatever enters it.

The exposure sequence:

1. The load is landed and looks settled.
2. A sling is pinned under the load, snug against the dunnage, or trapped between the load and the surface.
3. The worker reaches under or into the gap to free it, or hauls on it to drag it out.
4. The load is still bearing on the sling, or shifts as the rigging moves, or the trapped sling releases suddenly.
5. The hand is crushed under the load, pinched in the gap, or struck as the freed sling snaps loose.

The injury comes from treating a trapped or weight-bearing sling as a removal problem to be solved by hand, when it is in fact a **re-lift or re-plan** problem. The hand has no business in the gap, and a sling that will not come free by hand from outside the gap is telling the crew the load is not ready to be de-rigged.

Exposure mechanisms in this task: hand crushed between load and surface while freeing a sling · hand reaching under an unstable load that shifts · pinch in the trapped rigging path · strike from a sling snapping back when forced free · load tipping or rolling as rigging is removed unevenly · finger caught in a shackle/hook being worked under tension.

Exposure Severity Matrix

Exposure	Potential Outcome
Hand between load and surface freeing a trapped sling	Crush injury / amputation
Reaching under a load that is not stable	Severe crush / fatality if load shifts
Pulling a sling still bearing load from the pinch gap	Finger/hand crush as load settles
Forced release of a trapped sling	Snap-back strike / laceration / knockdown
Uneven de-rigging causing load to tip or roll	Crush / fatality

3. TYPICAL APPLICATIONS

This SOP applies to removing slings, straps, chains, and rigging from any landed load:

- De-rigging fabrications, machinery, and equipment after landing on foundations, stools, or dunnage
- Removing slings from coils, billets, slabs, plate, and stacked materials
- Freeing slings from beneath flat-bottomed loads landed directly on a surface

- De-rigging loads in racks, on vehicles, or in confined landing areas
- Removing chokers, baskets, and endless slings from around or under a load
- Recovering slings trapped by load settlement, dunnage shift, or uneven landing

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Freeing slings from under coils, slabs, and plate stacks
Offshore / Oil & Gas	De-rigging skids and equipment on deck and on foundations
Wind Energy	Removing slings from bedplates and large components after seating
Manufacturing	De-rigging engines, pumps, and dies after landing on baseplates
Shipyards & Ports	Freeing slings from blocks, panels, and containers after set-down
Maintenance Workshops	Removing slings from gearboxes, motors, and heavy components on benches

Sling removal is the **completion of the landing sequence** governed by LG-SOP-002. It does not begin until that SOP's conditions — load landed, stable, slings slack — are met.

4. SLACK, TRAPPED, DRAGGED, FORCED — THE FOUR REMOVAL STATES

(Task-specific doctrine section — retained as standalone field language.)

There is only one safe way to remove a sling. The other three are how hands get caught. Naming them lets a crew call the difference out loud.

Slack sling removal — the load is stable, the sling carries no weight, and the sling is free of the load and the surface. *The only correct state.* The sling is lifted or slid away with no part of the hand entering a gap, under the load, or into a pinch path. If a sling is truly slack and free, removal is trivial and safe.

Trapped sling removal — the sling is pinned under the load or wedged in the gap between load and surface. *Not a removal task.* A trapped sling means the load is sitting on the rigging. The answer is a **controlled re-lift** to free it, or a **re-plan** — never a hand into the gap.

Dragged sling removal — hauling a sling out from under or between the load and surface by pulling on it. *Misuse.* Dragging a sling from a pinch gap pulls the hand toward the gap, can shift the load, and ends with a snap as the sling clears. If it has to be dragged, it is trapped (see above).

Forced sling removal — levering, jerking, or working a stuck sling free by hand. *Failure state.* Forcing a sling stores energy and removes control; the release is sudden, the load can move, and the hand is in the worst possible place when it lets go.

The discipline in one line: **a free sling lifts away clean; a trapped sling is re-lifted, not reached for; never drag it, never force it.**

5. WHEN HANDS MAY APPROACH THE LOAD

Hands may approach a landed load to remove slings **only when all of the following are confirmed:**

1. The load is **fully landed** — its full weight is on its supports, dunnage, or foundation, not on the crane or the slings.

2. The load is **stable** — it will not tip, roll, slide, or settle further; it is blocked or chocked if there is any tendency to move.
3. The **slings are slack** — the hook carries no weight and the slings hang or lie loose with no tension.
4. The **sling is free** — it is not pinned under the load or trapped in a gap; it can be removed without any part of the hand entering a pinch zone, the closing gap, or the space under the load.

If any one of these is not true, hands do not approach. The condition is fixed first — by landing fully, by stabilising, by slacking off, or by a controlled re-lift to free the sling — and only then is the sling removed by hand from outside any gap.

This is the same boundary as the Last 300 mm Rule™ (EE-SOP-001), applied in reverse: just as no hand enters the last 300 mm while a gap is *closing*, no hand enters the gap *beneath a landed load* to retrieve rigging. The gap under a load that may still settle is a closing gap waiting to happen.

6. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

The decision point in sling removal arrives when the load is down, almost everything is clear, and one sling will not quite come free. It is caught under an edge, snug against the dunnage, just out of easy reach. The crane is rigged off or busy. Re-lifting feels like a hassle for such a small thing. The worker thinks:

"Everything's down and safe, it's just this one sling. A quick tug, or reach in and flick it out. Two seconds. Just a little more and we're done."

The trap is the word "safe." The load is landed, so the danger feels over — but a sling that is trapped is direct evidence that the load is bearing on it, or settled onto it, or sitting where the gap is closed. Reaching into that gap, or hauling the sling out of it, puts the hand exactly where the load's weight already is. And the freed sling, when it finally releases, snaps and shifts the very load the worker is reaching under.

A trapped sling is not the last small step of a finished job. It is the job telling the crew it is not finished.

The rule at the decision point:

A sling that will not come free by hand from outside the gap is trapped, and a trapped sling is never freed by hand. The smaller and more "nearly done" the job feels, the more disciplined the re-lift decision must be. Removal is for free slings; trapped slings are re-lifted or re-planned.

The alternative method at the decision point:

1. **Stop and confirm the state.** Is the load fully landed and stable? Is the sling actually slack, or is the load bearing on it? If it will not lift away clean, treat it as trapped.
2. **Use distance, not the hand.** For a sling that is free but awkward to reach, use a retrieval hook or distance tool (DC-SOP-004) — never an arm into the gap or under the load.
3. **For a genuinely trapped sling, re-lift under control or re-plan.** Re-rig the crane, take a controlled slight re-lift to free the sling (see §8), reposition dunnage with the load lifted clear, then set down again. If it cannot be freed safely, stop and re-plan the de-rig. A re-lift costs minutes; a trapped hand does not come back.

7. PRACTICAL FIELD INDICATORS OF UNSAFE SLING REMOVAL

Supervisors and riggers shall treat the following as visible warning signs:

- A hand or arm reaching **under** a landed load to free or retrieve a sling
- A hand reaching into the gap between the load and the dunnage or surface
- A worker hauling or tugging on a sling that is pinned under the load
- A worker levering, jerking, or working a stuck sling to force it free
- Slings being removed while the hook still carries weight or the slings are still tensioned
- Slings being removed from a load that is not blocked, chocked, or confirmed stable
- De-rigging proceeding unevenly such that the load could tip or roll as supports are removed
- Fingers worked into a shackle or hook still under residual tension
- A worker kneeling or crouching at the load edge, head and hand near the gap, to "see and reach" the sling

Each indicator means the four approach conditions (§5) have not been met, and the task has slipped from removal into a trapped-rigging hazard.

8. REQUIRED CONTROLS

Planning controls — set before the lift, not at de-rig

- Dunnage, stools, and packing positioned so that, when the load lands, the slings remain **accessible and free** — slings should not be pinned under the load's full weight or buried in a closed gap
- Adequate clearance designed under or beside the load so slings can be withdrawn without a hand entering a pinch zone (the dunnage creates the gap the sling comes out through, not a hand)
- Landing orientation planned so the de-rig can be done from stable positions, clear of the load's fall and roll directions
- Sling type and reeving chosen with removal in mind — chokers and slings that will not pull free from under a settled load are a planning problem to solve before the lift

Distance-control equipment

- Retrieval hooks, sling pullers, or distance tools available to recover free-but-awkward slings without reaching in (DC-SOP-002, DC-SOP-004)
- Crane or hoist available and rigged to take a controlled re-lift if a sling is trapped — de-rigging is not "finished with the crane" until the slings are confirmed free

The controlled re-lift (for a trapped sling)

- Re-attach/confirm the crane to the load under the standard lift controls
- Take the load's weight smoothly and lift only as far as needed to free the trapped sling — a small, controlled lift, signaller in control, one voice
- With the load held clear, free the sling and reposition dunnage from **outside** the load's footprint, by hand only where no gap exists, or by tool
- Set the load back down under LG-SOP-002, confirm stability and slack, then remove the now-free sling
- No hand goes under or into the gap of the **raised** load either — a re-lifted load is a suspended load again, and all load-guidance SOPs apply

People controls

- Load confirmed landed, stable, and slings slack before any hand approaches (§5)
- Load blocked or chocked if it has any tendency to move before slings are removed
- De-rig sequence planned so the load stays stable as each sling is removed — no removal that lets the load tip or roll

- One person directing the de-rig; "HOLD"/"STOP" from anyone halts it
-

9. SAFE WORK PROCEDURE

Phase A — Confirm the load is ready (handover from LG-SOP-002)

1. Confirm the load is fully landed: full weight on its supports, none on the crane or slings.
2. Confirm the load is stable: no tendency to tip, roll, slide, or settle; blocked or chocked if needed.
3. Confirm the slings are slack: hook carries no weight, no tension in the rigging.

Phase B — Assess each sling before touching it

4. For each sling, confirm it is **free** — not pinned under the load, not trapped in a closed gap. Test by observing slack and accessibility, not by pulling from the pinch zone.
5. If a sling is free but awkward to reach, use a retrieval hook or distance tool — do not reach under the load or into the gap.

Phase C — Remove free slings

6. Remove slings that are slack and free by lifting or sliding them clear, keeping hands out of any gap, off the closing-gap line, and clear of the space under the load.
7. De-rig in a sequence that keeps the load stable throughout; do not remove a sling whose removal lets the load move.
8. Work shackles and hooks only when free of residual tension; keep fingers out of shackle jaws and hook throats under any load.

Phase D — Handle a trapped sling

9. If any sling will not come free clean, **stop** — it is trapped. Do not reach in, drag, or force it.
 10. Take a controlled re-lift (§8): crane takes the weight, load lifts only enough to free the sling, dunnage repositioned from outside the footprint, load set back down, slings confirmed free, then removed.
 11. If the sling cannot be freed safely even with a re-lift, stop and re-plan the de-rig before proceeding.
-

10. PROHIBITED ACTIONS

- Reaching under a landed load to free, retrieve, or guide a sling
 - Reaching into the gap between the load and the dunnage or surface for a sling
 - Removing slings while the hook carries weight or the slings are still tensioned
 - Pulling or dragging a sling out from under or between the load and the surface
 - Levering, jerking, or forcing a trapped or stuck sling free by hand
 - Removing slings from a load that is not confirmed stable, blocked, or chocked
 - De-rigging in a sequence that allows the load to tip, roll, or settle onto a hand
 - Working fingers into a shackle or hook that is still under residual tension
 - Reaching under or into the gap of a **re-lifted** load (a re-lifted load is a suspended load)
 - Treating a trapped sling as a removal task instead of a re-lift or re-plan
-

11. STOP WORK CRITERIA

Sling removal shall stop, hands shall be kept clear, and the method shall be reviewed when:

1. A sling is trapped, pinned, or will not come free clean by hand from outside the gap
2. The load is not confirmed fully landed, stable, and weight-off-the-slings
3. The load shows any tendency to tip, roll, slide, or settle as rigging is removed
4. Removing a sling would require a hand under the load or into a pinch gap
5. A sling is under residual tension, or a shackle/hook will not free without force
6. The de-rig sequence would leave the load unstable
7. A retrieval tool is needed for a free sling but is not available
8. Anyone — at any level — feels the urge to "just flick it out" or give a trapped sling a quick tug

The expected response is always the same: **confirm the load state, use a tool for free slings, re-lift under control for trapped slings, or re-plan**. A controlled re-lift costs minutes. A hand under a load costs everything.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
One sling caught under the load edge	Reach under and flick it free	It's trapped — controlled re-lift to free it, then remove
Sling free but awkward to reach in a gap	Stretch an arm in to grab it	Retrieval hook / sling puller from outside the gap
Sling snug against the dunnage	Drag it out by hauling on the tail	Re-lift slightly, reposition dunnage from outside the footprint, set down, remove
Stuck sling won't budge	Jerk it / lever it free	Stop — it's bearing load; re-lift or re-plan
Load landed but not yet chocked	Start pulling slings anyway	Confirm stable and chock first; then remove free slings in a stable sequence
Hook still under slight tension	Work the shackle pin out by hand	Slack off fully first; fingers out of the jaw until free
Flat load sitting directly on the floor	Tip the load by hand to pull the sling	Plan dunnage before the lift so the sling is never pinned; if pinned, re-lift
Re-lifted load, sling now hanging under it	Reach under the raised load to take it	Treat as a suspended load — set down on dunnage first, then remove free sling

13. TOOLBOX TALK MESSAGE

Title: Never trade a trapped sling for a trapped hand

De-rigging feels like the safe bit. Load's down, crane's done, everyone relaxes. That's exactly when hands go where they shouldn't — under the load, into the gap, hauling on a strap that won't come free.

Here's the thing about a sling that's stuck: it's stuck because the load is sitting on it. So when you reach in to free it, you're putting your hand exactly where all that weight already is. And when it finally lets go — it snaps, and the load shifts, right where your arm is. A trapped sling isn't the last little step of a finished job. It's the job telling you it isn't finished.

So before any hand goes near a landed load, four things have to be true:

- **Landed** — full weight on the dunnage, nothing on the crane.
- **Stable** — it won't tip, roll, or settle; chock it if there's any doubt.

- **Slack** — no weight on the hook, no tension in the slings.
- **Free** — the sling will lift away clean, no hand into any gap.

If all four are true, the sling lifts off easy and safe. If even one isn't true — especially if the sling's trapped — you do not reach in. A free sling that's just awkward? Use a retrieval hook, not your arm. A genuinely trapped sling? That's a re-lift: crane takes the weight, lift just enough to free it, sort the dunnage from outside, set it back down. Costs you two minutes.

Ask the crew: *"When a sling's stuck under a load, what do we usually do — reach in, or re-lift?"* If the honest answer is "reach in," that's the habit that takes fingers, and that's the one we're changing.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, side or three-quarter view, pinch zone / gap hatched, hand entry point marked with a circle and arrow.

1. **Fig. 1 — The four conditions.** Landed load on dunnage with a free, slack sling lying clear; checklist callouts ticked: LANDED · STABLE · SLACK · FREE; a hand lifting the sling away from outside any gap, tick.
2. **Fig. 2 — Wrong method: the reach-under.** Worker's arm reaching under a landed load to free a trapped sling; gap between load and surface hatched as a crush zone; hand circled, large cross.
3. **Fig. 3 — Trapped means re-lift.** Two panels: (left) sling pinned under the load edge, crossed; (right) controlled slight re-lift on the crane freeing the sling, dunnage repositioned from outside the footprint, tick.
4. **Fig. 4 — The snap-back.** Worker hauling a trapped sling from the gap; dashed arc showing the sling snapping free and the load shifting toward the hand; large cross.
5. **Fig. 5 — Tool, not arm.** Free-but-awkward sling in a gap; wrong panel: arm stretched in, crossed; right panel: retrieval hook drawing it out from outside the gap, tick.
6. **Fig. 6 — Decision point.** Load down, one sling caught, worker's hand moving toward the gap; thought-style callout "JUST FLICK IT OUT?" struck through; arrow sequence: "STOP → IS IT FREE? → TOOL FOR FREE / RE-LIFT FOR TRAPPED".

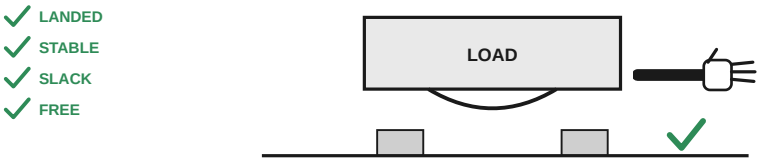
15. HSF EXPOSURE PRINCIPLE

"Never trade a trapped sling for a trapped hand. A sling is removed only after the load is stable and the sling is free — if the sling is trapped, the task is not removal, it is a controlled re-lift or re-plan."

SH-SOP-002 · SLING REMOVAL

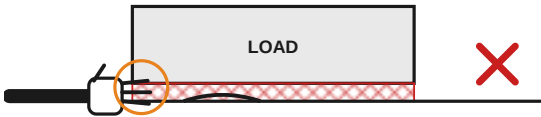
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Fig. 1 — Hands approach only when all four are true



Landed, stable, slack and free — only then does a hand lift the sling away, clear of any gap.

Fig. 2 — A trapped sling means the load is sitting on it



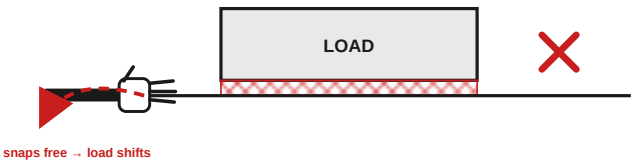
Reaching in to free a trapped sling puts the hand where the load's weight already is.

Fig. 3 — A trapped sling is a re-lift, not a reach



If a sling will not come free clean, it is trapped — take a controlled re-lift, never a hand into the gap.

Fig. 4 — A forced sling snaps free and shifts the load



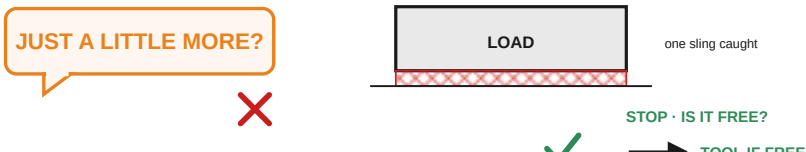
Dragging a trapped sling ends in a sudden release that snaps the sling and shifts the load onto the hand.

Fig. 5 — For a free but awkward sling, use a tool not an arm



A free sling that is awkward to reach is recovered with a retrieval hook — never an arm under the load.

Fig. 6 — "Just flick it out" is the moment to check it is free





TOOL IF FREE

RE-LIFT IF TRAPPED

Never trade a trapped sling for a trapped hand — a stuck sling is a re-lift or re-plan, not a quick tug.

SH — SLING HANDLING

SH-SOP-003 · Shackle Handling

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: SH-003 **Exposure Type:** Sling Handling — Shackle Connection and Disconnection

Primary Hazard: Finger Pinch Between Shackle and Lug / In the Bow **Secondary Hazards:** Pin Worked Under Tension · Shackle Rotated by Finger · Hand in the Closing Gap on Connection · Residual-Tension Release

Control Hierarchy (HSF order of preference):

1. Eliminate Hand Contact
2. Create Distance
3. Control Load Movement
4. Administrative Controls
5. PPE

Associated HSF Controls

- SH-SOP-001 — Sling Placement
- SH-SOP-002 — Sling Removal
- SH-SOP-004 — Hook Engagement
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- DC-SOP-002 — Using Distance Creation Tools
- TC-SOP-002 — Hole and Pin Alignment
- SZ-SOP-002 — Line-of-Fire Control
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Sling Handling, Pinch Point, Closing Gap, Stored Energy entries.

1. PURPOSE

This SOP establishes how shackles are handled — connected, pinned, rotated into position, and disconnected — without placing fingers in the pinch points between the shackle, the pin, and the lug, and without working pins under load.

It answers one question:

How do we connect and disconnect shackles without putting fingers into the bow, between the shackle and the lug, or onto a pin that is under tension?

The shackle is small, it is handled by hand by necessity, and it is surrounded by pinch points: the gap between the bow and the lug, the gap the pin closes as it threads, and the throat that narrows as the connection comes together. Most shackle injuries are not dramatic — they are fingers caught in those gaps as the shackle is

aligned, as the load takes up, or as a pin is forced through a misaligned hole. The hand is close because it must be; the discipline is in *which part* of the hand is where, and *when*.

The governing idea:

Align the shackle, not the finger.

The shackle is brought to alignment by handling its body and using a tool or pin to find the hole — never by a finger reaching into the bow or the lug gap to feel or guide the alignment.

2. EXPOSURE SUMMARY

A shackle connection brings two hard parts together — the shackle bow and the lug — with a pin closing the gap between them. Every stage of that has a pinch point, and the hand is right there making the connection.

The exposure sequence:

1. The shackle is offered up to the lug to make a connection.
2. The holes do not quite line up, so a finger goes into the bow or the lug gap to feel or nudge the alignment.
3. The load, sling, or shackle moves — takes up tension, swings slightly, rotates — and the gap between bow and lug closes.
4. The finger is pinched or crushed between the shackle and the lug, or against the pin.
5. Or: the pin is worked into a hole that is under load or misaligned, and the finger is caught as it forces through or as the pin suddenly seats.

The exposure is concentrated in two moments: **aligning** the shackle to the lug (finger in the gap to guide it) and **pinning** under any tension (finger near the pin as the connection takes load). Both are avoidable by handling the shackle body, aligning with a tool or pin, and never closing a connection that has load in it.

Exposure mechanisms in this task: finger pinched between shackle bow and lug · finger crushed in the closing gap as the connection comes together · finger caught working a pin through a misaligned hole · pinch as a shackle rotates or swings into position · crush as residual tension takes up on connection/disconnection · pin or shackle dropped from height in the line of fire.

Exposure Severity Matrix

Exposure	Potential Outcome
Finger between shackle bow and lug as load takes up	Crush / amputation
Finger in the bow guiding pin alignment	Pinch / fracture
Working a pin through a misaligned hole under tension	Finger crush / amputation
Shackle rotated into position by a finger in the gap	Pinch / fracture
Pin or shackle dropped during handling at height	Strike injury below (line of fire)

3. TYPICAL APPLICATIONS

This SOP applies wherever shackles connect rigging to loads, lugs, or anchor points:

- Connecting slings to lifting lugs, padeyes, and trunnions
- Connecting sling eyes to master links, hooks, and rigging assemblies

- Joining rigging components in multi-leg and bridle arrangements
- Connecting to fixed anchor points, beam clamps, and structures
- Disconnecting any of the above after a lift, under the conditions of SH-SOP-002

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Shackling slings to coil grabs, lifting beams, and lug points
Offshore / Oil & Gas	Shackling rigging to padeyes on skids, baskets, and equipment
Wind Energy	Connecting bridles to bedplate and component lugs
Manufacturing	Shackling slings to machinery lifting points and spreader beams
Shipyards & Ports	Connecting rigging to block padeyes and lifting arrangements
Maintenance Workshops	Shackling slings to gearbox, motor, and component lugs

Shackle connection is part of placement (SH-SOP-001) and disconnection is part of removal (SH-SOP-002); the load-state and approach conditions of those SOPs apply here.

4. ALIGNING, GUIDING, PINNING, ROTATING — WHERE THE FINGER GOES WRONG

(Task-specific doctrine section — retained as standalone field language.)

Shackle work is four small actions, and each has a safe way that handles the shackle body and an unsafe way that puts a finger in a gap.

Aligning — bringing the shackle's pin hole into line with the lug hole. *Safe way:* handle the **outside** of the shackle bow; bring the holes together by moving the shackle body and the lug, sighting the alignment by eye. *Unsafe way:* a finger into the bow or the lug gap to feel or pull the holes into line — the finger is now in the pinch point.

Guiding — leading the pin into the aligned holes. *Safe way:* start the pin by hand on its **head/handle**, fingers clear of the hole and the gap; use a tool or the pin's own taper/a drift to find the hole if needed (TC-SOP-002). *Unsafe way:* a fingertip in the hole to "find" it for the pin.

Pinning — threading and securing the pin. *Safe way:* with **no load** in the connection, thread and tighten the pin by its head; the gap between bow and lug is open and stable. *Unsafe way:* working the pin while the connection carries tension, so the gap can snap closed on the hand.

Rotating — turning the shackle to orient the bow, pin, or load line. *Safe way:* turn the shackle by its body from outside the bow. *Unsafe way:* a finger hooked through the bow to spin it — a finger inside the bow when the load or sling moves is a finger in a closing loop.

The discipline in one line: **handle the body, sight the holes, start the pin by its head, and connect only with the load off — never a finger in the bow, the gap, or the hole.**

5. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

The decision point in shackle work arrives when the holes are **almost** lined up. The pin is started but won't quite go; the lug and the shackle are a few millimetres out; the connection is nearly there. Reaching for a drift

or repositioning the rigging feels like too much for such a small misalignment. The worker thinks:

"It's almost lined up — one finger to nudge the hole across and the pin drops straight in. A second. Just a little more."

The trap is that the finger goes into the exact gap the connection is about to close. A shackle-to-lug alignment is a closing gap: the moment the holes line up and the pin seats, or the moment the load takes up, the bow and lug come together. A finger in the bow or the hole to guide that last few millimetres is a finger in the pinch point at the instant of closure. And shackle connections are rarely dead still — the sling has weight, the load may shift, the rigging swings slightly — so the gap can close before the finger withdraws.

A connection that needs a finger to align it is a connection that is not aligned. That is the signal to align it properly — with the shackle body and a tool — not to reach in.

The rule at the decision point:

A shackle that will not pin up without a finger in the bow, the gap, or the hole is not aligned, and the answer is to align the shackle — never the finger. The smaller the remaining misalignment, the closer the connection is to closing, and the worse the place for a finger.

The alternative method at the decision point:

1. **Stop reaching into the gap.** If the pin will not start without a finger guiding the hole, the alignment is not ready.
2. **Align by handling the body and using a tool.** Move the shackle and lug into line by the shackle's outside; use a drift, podger, tapered pin, or the pin's own taper to draw the holes together (TC-SOP-002) — the tool finds the hole, the finger does not.
3. **Take the load off and stabilise before pinning.** If tension or movement is closing the gap, slack the connection and steady the rigging (HOLD the crane, settle the sling) so the gap is open and stable, then pin up. If it cannot be aligned safely, re-rig.

6. KEY EXPOSURE PRINCIPLE

A shackle is aligned and connected by handling its body and starting the pin by its head, with the connection free of load and movement. No finger enters the bow, the gap between bow and lug, or a pin hole, and no pin is worked while the connection is under tension.

The shackle is brought to the finger's work — by the body and a tool — rather than the finger being brought into the shackle's pinch points.

7. PRACTICAL FIELD INDICATORS OF UNSAFE SHACKLE HANDLING

Supervisors and riggers shall treat the following as visible warning signs:

- A finger inside the shackle bow, or in the gap between the bow and the lug, during connection
- A fingertip in a pin hole to "find" or guide alignment
- A pin being worked, threaded, or driven while the connection is carrying load
- A shackle being spun or rotated by a finger hooked through the bow

- A connection being made while the sling is tensioned or the load is moving
- A worker forcing a pin through a misaligned hole by hand
- Fingers wrapped around the bow on the load-line side as tension comes up
- A drift, podger, or tapered pin available but unused while a finger does the aligning
- Shackle or pin handled at height with no control against dropping into the line of fire below

Each indicator means a finger is in a pinch point that the connection can close, and the task shall be corrected before tension comes up.

8. REQUIRED CONTROLS

Connection state

- Shackles connected and disconnected with the connection **free of load** — hook slacked, sling untensioned, gap open and stable (links to SH-SOP-002 for disconnection conditions)
- The rigging steadied before pinning — no connection made to a moving, swinging, or tensioning sling or load
- For disconnection, residual tension fully released before the pin is touched; if a pin will not free by hand, the connection is still loaded — slack it, do not force it

Alignment by body and tool

- Shackle aligned to the lug by handling the **outside of the bow** and moving the body — not by a finger in the gap
- Holes brought into line by sight; final alignment by drift, podger, tapered pin, or the pin's own taper (TC-SOP-002) — the tool finds the hole
- Pin started and threaded by its **head or handle**, fingers clear of the hole and the bow/lug gap throughout

Hand and body position

- No finger in the bow, the bow-to-lug gap, or a pin hole at any time
- Hands on the shackle body and pin head only; fingers off the load-line side of the bow as tension is anticipated
- Body positioned out of the line of fire of the load and rigging; clear of where the connection swings as it takes up

Working at height / dropped objects

- Shackles and pins secured against dropping when handled at height; no one in the line of fire below (SZ-SOP-002)

When not to connect by hand / when to re-rig

- If a connection cannot be aligned without a finger in a pinch point, and no tool can align it, **stop and re-rig** — reposition the lug, the sling, or the load to present a clean, stable connection
 - No deadline or "it's nearly there" justifies a finger in the bow or a pin worked under load
-

9. SAFE WORK PROCEDURE

Phase A — Set up a load-free, stable connection

1. Confirm the connection is free of load: hook slacked, sling untensioned, gap open. For disconnection, confirm residual tension is fully released.

2. Steady the rigging so the shackle and lug are not moving or swinging.
3. Have the correct shackle and a drift/podger/tapered pin ready before starting.

Phase B — Align by body and sight

4. Bring the shackle to the lug by handling the outside of the bow. Sight the holes into line by eye.
5. Where the holes need final alignment, use a drift or the pin's taper to draw them together — the tool in the hole, not a finger.

Phase C — Pin up

6. Start the pin by its head/handle with fingers clear of the hole and the gap. Thread and tighten by the head.
7. Confirm the pin is fully seated and secured per its type (screw pin tightened, bolt/nut/cotter fitted). Keep fingers off the load-line side of the bow as the connection is about to take load.

Phase D — Take up and hand over (or disconnect)

8. As the load takes up, hands are clear of the bow and gap entirely; tension is applied through the crane, with the connection observed from a safe position.
9. For disconnection: confirm the connection is slack and load-free (SH-SOP-002), free the pin by its head, and handle the shackle by its body clear of the gap.
10. If at any point the pin will not start, seat, or free by hand, **stop** — align with a tool, slack any load, or re-rig. Do not force it and do not reach into the gap.

10. PROHIBITED ACTIONS

- Placing a finger inside the shackle bow, between the bow and the lug, or in a pin hole during connection or disconnection
- Using a fingertip to find or guide hole alignment for the pin
- Working, threading, or driving a pin while the connection carries load
- Forcing a pin through a misaligned hole by hand
- Rotating or spinning a shackle by a finger hooked through the bow
- Connecting to a moving, swinging, or tensioned sling or load
- Wrapping fingers around the load-line side of the bow as tension comes up
- Disconnecting before residual tension is fully released
- Handling shackles or pins at height with no control against dropping into the line of fire
- Forcing a connection that needs a finger to align, instead of re-rigging

11. STOP WORK CRITERIA

Shackle handling shall stop, hands shall be kept clear, and the method shall be reviewed when:

1. A connection cannot be aligned without a finger in the bow, gap, or hole
2. The pin will not start, seat, or free by hand from its head — a sign of misalignment or residual load
3. The connection is under tension, or the sling/load is moving, when a pin must be worked
4. A pin would have to be forced through a misaligned hole
5. The shackle must be rotated and the only apparent way is a finger through the bow
6. A worker's fingers are observed in a pinch point, or on the load-line side of the bow as tension comes up
7. A drift/podger is needed for alignment but not available
8. Anyone — at any level — feels the urge to "just nudge the hole across with a finger"

The expected response is always the same: **slack any load, steady the rigging, align with the body and a tool, or re-rig**. Aligning properly costs seconds. A finger in the bow costs a finger.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Holes nearly aligned, pin won't quite go	Finger in the hole to nudge it across	Drift / tapered pin / pin taper to draw the holes together; align the shackle body
Shackle needs turning to present the pin	Hook a finger through the bow and spin it	Turn the shackle by its body from outside the bow
Connection under slight tension	Work the pin anyway, "it's only light"	Slack the connection fully; pin up load-free
Pin tight to remove at disconnect	Force it / lever it with a finger braced in the bow	It's still loaded or seized — slack any load; free by the head; re-rig if needed
Lug and sling a few mm out	Pull them into line with a finger in the gap	Reposition by handling bodies; tool to final-align; sight by eye
Multi-leg bridle being made up while swinging	Connect as it moves	HOLD/steady the rigging; connect only when still and load-free
Shackle pin started, hole misaligned	Push fingers in to wiggle it home	Back the pin out; re-align with a drift; start clean
Working a connection overhead	Pin up with shackle/pin unsecured, crew below	Secure against dropping; clear the line of fire below (SZ-SOP-002)

13. TOOLBOX TALK MESSAGE

Title: Align the shackle, not the finger

Shackle work takes fingers more than almost anything else we do — and it's never dramatic. No swinging load, no crane drama. Just a finger in the wrong gap when the holes line up or the load takes up, and it's gone.

Here's where it happens. The holes are nearly lined up, the pin won't quite drop, and you put a finger in to nudge it across. But think about what that gap is: it's the gap that closes the instant the holes meet or the load comes on. Your finger's in the one spot that's about to shut. And shackle connections are never dead still — there's weight in the sling, the load shifts, the rigging swings a touch. The gap can close before your finger's out.

So the rule is in the name: align the shackle, not the finger.

- **Handle the body.** Move the shackle and the lug into line by the outside of the bow — never a finger in the bow or the gap.
- **Sight the holes, tool the holes.** Line them up by eye; if they need that last bit, a drift or the pin's taper finds the hole. Not your fingertip.
- **Start the pin by its head.** Fingers off the hole, off the gap, off the load-line side of the bow.
- **Connect load-free, disconnect load-free.** If the pin won't go or won't come by hand, there's load in it or it's not aligned. Slack it, sort it — don't force it.

And up high: a dropped pin or shackle is a missile. Secure it, and keep people out from under.

Ask the crew: "When the holes don't line up, what's our reflex — finger or drift?" If it's "finger," that's the one that costs a knuckle, and that's the habit we change.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, close detail of shackle/lug/pin, pinch points hatched, finger entry point marked with a circle and arrow.

1. **Fig. 1 — Handle the body.** Hand gripping the outside of the shackle bow, bringing it to a lug; holes sighted into line; fingers clear of the bow and gap; tick. Caption "BODY AND SIGHT — NOT FINGER AND FEEL".
 2. **Fig. 2 — Wrong method: finger in the bow.** Fingertip inside the bow / in the lug gap guiding alignment; the bow-to-lug pinch point hatched; arrow showing the gap closing as load takes up; large cross.
 3. **Fig. 3 — Tool finds the hole.** Drift / tapered pin drawing two holes into alignment, hand on the drift outside the pinch point; inset of a fingertip in the hole, crossed.
 4. **Fig. 4 — Pin by the head.** Pin started and threaded by its head/handle, fingers clear of the hole and gap; tick. Contrast inset of fingers wrapped on the load-line side of the bow as tension arrows come up, crossed.
 5. **Fig. 5 — Load-free only.** Two panels: (left) pin being worked with tension/arrows in the connection, gap ready to snap shut, crossed; (right) connection slack and stable, gap open, pin worked safely, tick.
 6. **Fig. 6 — Decision point.** Holes a few mm out, pin started, finger reaching toward the hole; thought-style callout "JUST NUDGE IT?" struck through; arrow sequence: "STOP → BODY + DRIFT TO ALIGN → SLACK LOAD → PIN BY THE HEAD".
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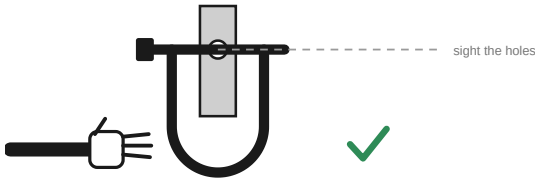
15. HSF EXPOSURE PRINCIPLE

"Align the shackle, not the finger. The shackle is brought to alignment by its body and a tool, with the load off — never by a finger in the bow, the gap, or the hole."

SH-SOP-003 · SHACKLE HANDLING

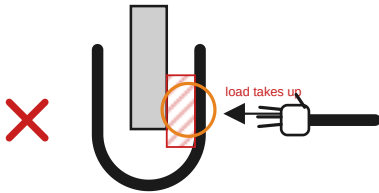
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Fig. 1 — Align the shackle by its body, sight the holes



Bring the shackle to the lug by the outside of the bow and line the holes by eye — never by feel.

Fig. 2 — A finger in the bow is in the gap that closes



A fingertip guiding the holes sits in the bow-to-lug pinch — the gap that snaps shut as the load comes on.

Fig. 3 — Let the drift find the hole, not the finger



A drift, podger or the pin's own taper draws the holes together — the tool in the hole, the finger clear.

Fig. 4 — Start the pin by its head, fingers off the bow



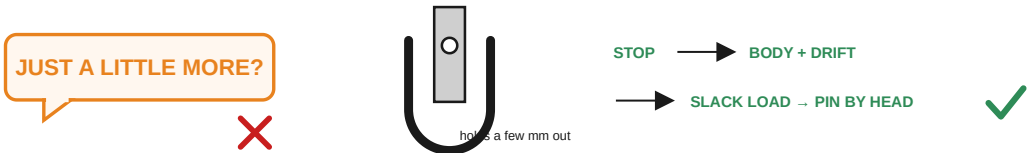
Thread the pin by its head with fingers off the hole and the load-line side of the bow as tension comes up.

Fig. 5 — Connect and disconnect only with the load off



Make and break the connection load-free — a slack, stable gap that cannot snap shut on the hand.

Fig. 6 — "Just nudge it" is the moment to reach for the drift



A shackle that will not pin without a finger in the bow is not aligned — align the shackle, never the finger.

SH — SLING HANDLING

SH-SOP-004 · Hook Engagement

HSF EXPOSURE CONTROL CLASSIFICATION

Exposure Category: SH-004 **Exposure Type:** Sling Handling — Hook Engagement and Release **Primary Hazard:** Hand in the Hook Throat as Load Takes Up **Secondary Hazards:** Latch-Area Pinch · Hand Between Sling and Hook · Hook Swing / Drift Strike · Residual-Tension Release on Disengagement

Control Hierarchy (HSF order of preference):

- 1. Eliminate Hand Contact
- 2. Create Distance
- 3. Control Load Movement
- 4. Administrative Controls
- 5. PPE

Associated HSF Controls

- SH-SOP-001 — Sling Placement
- SH-SOP-002 — Sling Removal
- SH-SOP-003 — Shackle Handling
- LG-SOP-001 — Guiding Suspended Loads
- LG-SOP-002 — Final Positioning and Landing of Suspended Loads
- LG-SOP-005 — Tagline Use
- DC-SOP-002 — Using Distance Creation Tools
- SZ-SOP-002 — Line-of-Fire Control
- EE-SOP-001 — The Last 300 mm Rule™

Encyclopedia Cross-Reference: Hand Exposure Control Encyclopedia™ — Sling Handling, Pinch Point, Closing Gap, Line-of-Fire entries.

1. PURPOSE

This SOP establishes how slings, links, and rigging are engaged into and released from a crane or hoist hook — without placing the hand in the hook throat as the load takes up, in the latch pinch area, or between the sling and the hook.

It answers one question:

How do we put slings into a hook and take them out without a hand in the throat, the latch, or the closing gap between sling and hook?

The hook is where the rigging meets the crane, and it is the point where the load is captured. The hand that places a sling eye over the hook, holds it while the slack comes out, or guides it off at disengagement, is working right at the throat — the exact place the load bears down as the hook takes up. A hand in the throat

when the slack comes out is a hand under the full load line. The hook also moves: it swings, drifts, and rotates on the block, so the hand is reaching for a moving capture point.

The governing idea:

The hook takes the load, not the hand.

The hand places the sling and leaves; the hook captures and bears the load; at no point is the hand in the throat as the load comes on, nor in the path of a moving hook.

2. EXPOSURE SUMMARY

A hook engagement brings a sling eye, link, or fitting into the throat of the hook, and then the crane takes up the slack until the load line is tight. The danger is in that take-up: anything in the throat as the slack comes out is drawn against the back of the hook by the full force of the load line.

The exposure sequence:

1. The sling eye or link is placed over or into the hook.
2. A hand stays in or near the throat to hold the sling, seat it, or keep it from slipping while the slack comes out.
3. The crane takes up; the sling is drawn down into the throat and snug against the hook back.
4. The hand in the throat is pinched or crushed between the sling and the hook as the load captures.
5. Or: the hook is swinging/drifts and the hand reaches into its path to catch and engage it; or at disengagement, residual tension snaps the sling against the hand as it frees.

The hand is exposed at two moments: **engaging** (hand in the throat as slack comes out) and **disengaging** (hand near the throat with residual tension in the sling). The hook latch adds a third small pinch point as it closes. All three are avoided by placing the sling and removing the hand before take-up, and by handling a moving hook with a tagline or tool rather than a grab.

Exposure mechanisms in this task: hand crushed in the hook throat as the load line takes up · pinch between sling eye and hook back · finger caught in the latch as it closes · hand struck by a swinging or drifting hook · crush as residual tension snaps the sling on disengagement · hook or rigging dropped in the line of fire.

Exposure Severity Matrix

Exposure	Potential Outcome
Hand in the hook throat as slack comes out	Crush / amputation under the load line
Finger between sling eye and hook back	Pinch / amputation
Finger in the latch as it closes	Laceration / fracture
Hand reaching into a swinging hook's path	Strike / knockdown
Residual tension snaps sling on disengagement	Hand strike / crush

3. TYPICAL APPLICATIONS

This SOP applies wherever rigging is engaged to or released from a hook:

- Placing sling eyes, master links, and rigging assemblies onto crane and hoist hooks

- Engaging chokers, baskets, and bridles onto a hook or block
- Connecting lifting beams and spreaders to the main hook
- Engaging chain-block and lever-hoist hooks to loads and anchor points
- Disengaging any of the above after a lift, under the conditions of SH-SOP-002

Industry Application Examples

Industry / Work Area	Example Applications
Steel & Metal Plants	Engaging coil-grab and beam rigging to overhead crane hooks
Offshore / Oil & Gas	Engaging rigging to crane hooks on deck, in motion and wind
Wind Energy	Engaging bridles and beams to main hooks at laydown and up-tower
Manufacturing	Hooking spreaders and slings to shop crane and hoist hooks
Shipyards & Ports	Engaging block and panel rigging to crane hooks
Maintenance Workshops	Engaging chain-block and hoist hooks to component rigging

Hook engagement is the capture point of the lift; placement (SH-SOP-001), guidance (LG SOPs), and disengagement (SH-SOP-002) all meet at the hook.

4. PLACING, HOLDING, GUIDING, DISENGAGING — WHERE THE HAND GOES WRONG

(Task-specific doctrine section — retained as standalone field language.)

Hook work is four small actions. Each has a safe way that keeps the hand out of the throat and an unsafe way that puts it in.

Placing — putting the sling eye, link, or fitting onto or into the hook. *Safe way:* seat the eye over the hook by handling the **sling**, hand on the eye's body away from the throat, then withdraw before take-up. *Unsafe way:* a hand cupped in the throat to hold the eye in place.

Holding — keeping the sling seated while the slack comes out. *Safe way:* a tagline or light hand on the sling **away from the hook** keeps it from slipping; or the hook is raised slowly so the eye seats itself; the hand is clear of the throat before tension. *Unsafe way:* a hand in or across the throat holding the sling as the slack comes out — the worst exposure in hook work.

Guiding — bringing a swinging or drifting hook to the sling, or the sling to the hook. *Safe way:* steady and position the hook with a **tagline or hook handle/tool**, or bring the sling to a stopped hook; engage when the hook is still. *Unsafe way:* reaching into the path of a moving hook to grab and engage it.

Disengaging — taking the sling off the hook after the lift. *Safe way:* with the load landed and the sling **fully slack** (SH-SOP-002), lift the eye off by the sling body, hand clear of the throat and latch. *Unsafe way:* working the eye out of the throat while residual tension remains, or fingers in the latch.

The discipline in one line: **seat it by the sling, let the hook take up empty-handed, steady a moving hook with a line or tool, and disengage only when slack — never a hand in the throat.**

5. THE DECISION POINT — "JUST A LITTLE MORE"

(Standard section in every SOP of this library.)

The decision point in hook work arrives as the slack comes out. The sling eye is on the hook but not quite seated — it's sitting up on the point, or cocked to one side, and looks like it might jump off as the line tightens. The crane is already taking up. Reaching for a tagline or calling a stop feels like too much for a sling that just needs to drop into the throat. The worker thinks:

"It's nearly seated — I'll just hold it in the throat till the slack's out and it sets. A couple of seconds. Just a little more."

The trap is that "till the slack's out" is exactly the window the hand must not be there. As the load line tightens, the eye is drawn down hard into the throat and against the back of the hook — and a hand holding it is drawn down with it, crushed between the sling and the hook by the full force of the take-up. The few seconds the worker plans to hold are the few seconds the throat becomes a closing gap under load.

A sling that needs a hand to hold it seated as the slack comes out is a sling that is not seated. The answer is to stop the take-up and seat it properly — not to hold it through.

The rule at the decision point:

No hand is in the hook throat as the slack comes out, ever — not even to hold a sling that looks like it might jump. The moment the eye needs holding through take-up, stop the take-up. The throat under a tightening load line is a closing gap, and the hand has no place in it.

The alternative method at the decision point:

1. **Stop the take-up.** Call "HOLD". The slack stops coming out and the throat is safe to work at again.
2. **Seat the sling properly, hand clear of the throat.** Reposition the eye by the sling body, use a tagline or hook tool to settle it, or lower and re-place it so it sits in the throat on its own. A correctly seated eye does not need a hand to hold it through take-up.
3. **Take up empty-handed.** With the eye seated and the hand withdrawn, the crane takes up the slack while the sling is observed from clear. If the eye still will not seat, re-rig — do not hold it in.

6. KEY EXPOSURE PRINCIPLE

A sling is seated onto the hook by handling the sling, and the hand is withdrawn from the throat before the slack comes out. No hand is in the hook throat or latch as the load line takes up, and no hand reaches into the path of a moving hook. The hook captures the load; the hand never shares the throat with it.

The hand's only job at the hook is to place the sling and leave. The take-up belongs to the crane and the hook alone.

7. PRACTICAL FIELD INDICATORS OF UNSAFE HOOK ENGAGEMENT

Supervisors and riggers shall treat the following as visible warning signs:

- A hand in or across the hook throat as the slack comes out or the load takes up
- Fingers between the sling eye and the back of the hook
- A hand holding the latch open, or fingers near the latch as it closes

- A worker reaching into the path of a swinging or drifting hook to grab it
- A sling being held seated by hand "until the slack's out"
- Disengagement attempted while the sling still carries residual tension
- A worker positioned under the hook/block, in the line of fire, while engaging
- Hook handled or engaged while it is moving rather than stopped
- A tagline or hook tool available but unused while a hand steadies the hook

Each indicator means a hand is in or near the throat as the load captures, and the task shall be corrected before take-up.

8. REQUIRED CONTROLS

Engagement state and sequence

- The sling seated onto the hook with the hand on the **sling body**, away from the throat; the hand withdrawn **before** the slack comes out
- The crane takes up the slack only when all hands are clear of the throat and latch
- The hook **stopped** for engagement — not engaged on a swinging, drifting, or rotating hook; steadied by tagline or hook tool first (LG-SOP-005)
- For disengagement, the load landed and the sling **fully slack and load-free** (SH-SOP-002) before a hand approaches the hook; residual tension released first

Handling a moving hook

- A swinging or drifting hook is brought under control with a tagline, hook handle, or hook tool — never grabbed by hand from its path
- The sling is brought to a stopped hook, or the hook lowered to the sling, so engagement happens with the hook still

Hand, latch, and body position

- No hand in the hook throat, between sling and hook, or in the latch pinch area at any time the load can take up
- The latch operated by its design feature, fingers clear of the closing line of the latch
- Worker positioned out of the line of fire of the hook and block, and clear of where the hook swings (SZ-SOP-002)

Working at height / dropped objects

- Rigging and fittings secured against dropping during engagement at height; the line of fire below kept clear

When not to engage by hand / when to stop

- If the eye will not seat without a hand held in the throat through take-up, **stop the take-up and re-seat or re-rig** — do not hold it in
- If the hook cannot be steadied enough to engage with the hand clear, stop and control the hook first
- No deadline justifies a hand in the throat as the slack comes out

9. SAFE WORK PROCEDURE

Phase A — Stop and steady the hook

1. Bring the hook to a stop over the rigging. Steady any swing or drift with a tagline or hook tool — do not engage a moving hook.
2. Confirm the correct hook orientation and that the latch is sound and operating.

Phase B — Seat the sling

3. Place the sling eye, link, or fitting over/into the hook by handling the sling body, hand away from the throat.
4. Let the latch close by its design; keep fingers clear of the latch's closing line.
5. Confirm the eye is properly seated in the throat — sitting where it will draw down cleanly, not cocked on the point.

Phase C — Take up empty-handed

6. Withdraw the hand fully from the throat and latch **before** any take-up.
7. The crane takes up the slack while the sling is observed from a clear position. No hand returns to the throat to adjust under tension; if it is not seating right, "HOLD" and re-seat with the load off.
8. As the load lifts, hands are clear; guidance is by tagline (LG-SOP-001/005).

Phase D — Disengagement

9. Confirm the load is landed and the sling is fully slack and load-free (SH-SOP-002); release residual tension first.
 10. Lift the eye off the hook by the sling body, hand clear of the throat and latch.
 11. If the eye will not seat (engagement) or will not free (disengagement) by hand from clear, **stop** — re-seat, slack off, or re-rig. Do not hold it through take-up and do not work it under tension.
-

10. PROHIBITED ACTIONS

- Placing or holding a hand in the hook throat as the slack comes out or the load takes up
 - Holding a sling seated by hand through take-up
 - Placing fingers between the sling eye and the back of the hook
 - Holding the latch open by hand under load, or placing fingers in the latch's closing line
 - Reaching into the path of a swinging, drifting, or rotating hook to grab or engage it
 - Engaging a hook that is moving rather than stopped and steadied
 - Disengaging a sling while it still carries residual tension
 - Standing under the hook or block, in the line of fire, while engaging
 - Returning a hand to the throat to adjust a sling under tension
 - Holding a poorly seated eye through take-up instead of stopping and re-seating
-

11. STOP WORK CRITERIA

Engagement or disengagement shall stop, hands shall be kept clear, and the method shall be reviewed when:

1. A sling eye will not seat without a hand held in the throat through take-up
2. The hook is swinging or drifting and cannot be steadied enough to engage with the hand clear
3. The slack is coming out while a hand is still in or near the throat
4. A sling will not free at disengagement without residual tension being present
5. A hand would have to enter the latch's closing line or the sling-to-hook gap
6. A worker is in the line of fire of the hook or block
7. A tagline or hook tool is needed to control the hook but is not available

8. Anyone — at any level — feels the urge to "just hold it in the throat till the slack's out"

The expected response is always the same: **HOLD the take-up, steady the hook, re-seat with the hand clear, or re-rig.** Stopping the take-up costs seconds. A hand in the throat costs a hand.

12. WRONG METHOD vs PREFERRED METHOD

Situation	Wrong method	Preferred method
Eye sitting up on the hook point as slack comes out	Hold it down in the throat till it seats	HOLD the take-up; re-seat the eye by the sling body; take up empty-handed
Hook swinging over the rigging	Reach in and grab it to engage	Steady it with a tagline / hook tool; engage when stopped
Eye looks like it'll jump off	Cup a hand in the throat to keep it on	Lower the hook so the eye seats itself; or HOLD and re-place
Latch won't close cleanly	Hold it shut with a finger under load	Stop; check/clear the latch; engage with a sound latch, finger clear
Disengaging with slight tension left	Work the eye out of the throat anyway	Land fully, slack off completely (SH-SOP-002), then lift the eye off
Hook drifting at height	Hand out to catch it	Tagline control; bring it to a stop before engaging; nobody under it
Sling cocked, won't draw down straight	Adjust it in the throat under tension	HOLD; re-seat load-free; never adjust in the throat under load
Engaging directly under the block	Stand under the hook to line it up	Stand clear of the line of fire; position the sling, not yourself, under it

13. TOOLBOX TALK MESSAGE

Title: The hook takes the load, not the hand

The hook is built to take the whole load. Your hand isn't — and the place those two facts collide is the throat of the hook, right as the slack comes out.

Here's the moment that catches people. You've got the sling eye on the hook, but it's sitting up on the point, looks like it might jump. The crane's taking up. So you hold it down in the throat "just till the slack's out." But that's the exact window your hand can't be there. As the line tightens, the eye gets pulled down hard into the throat and against the back of the hook — and if your hand's holding it, your hand goes down with it. Full load line, on your fingers, against solid steel.

So the rule is simple: your hand puts the sling on, then your hand leaves. The take-up belongs to the hook alone.

- **Seat it by the sling, not in the throat.** Hand on the sling body, set the eye, get your hand out before any take-up.
- **If it won't sit right — stop the take-up.** A sling that needs holding to stay seated isn't seated. HOLD, re-seat it load-free, then take up with empty hands.
- **A moving hook gets a line, not a grab.** Swinging or drifting? Steady it with a tagline or a hook stick. Never put your hand in its path.

- **Take it off only when it's slack.** At the end, land the load, slack right off, then lift the eye clear of the throat and latch. No residual tension, no fingers in the latch.

And don't stand under the hook to line it up. Put the sling under it — not yourself.

Ask the crew: "*When an eye won't seat as the slack comes out, what do we do — hold it, or stop the crane?*" If it's "hold it," that's the one that takes fingers in the throat, and that's what we're changing.

14. ILLUSTRATION REQUIREMENTS

All illustrations: technical black line drawings, training-manual style, unbranded, no faces, close detail of hook/sling/latch, throat and latch pinch points hatched, hand entry point marked with a circle and arrow.

1. **Fig. 1 — Seat it and leave.** Hand seating a sling eye over the hook by the sling body, then withdrawn; second frame shows the slack coming out with no hand near the throat; tick. Caption "PLACE THE SLING — THEN GET CLEAR".
2. **Fig. 2 — Wrong method: hand in the throat.** Hand holding a sling eye down in the hook throat as load-line arrows take up; the throat hatched as a crush zone; the eye drawing down against the hook back onto the hand; large cross.
3. **Fig. 3 — The latch pinch.** Close detail of the latch closing line hatched; fingers clear (tick) vs a finger in the latch as it closes (cross).
4. **Fig. 4 — Moving hook.** Swinging/drifted hook; wrong panel: hand reaching into its path to grab, crossed; right panel: tagline/hook tool steadying it to a stop, engaged when still, tick.
5. **Fig. 5 — Disengage slack only.** Two panels: (left) eye worked out of the throat with residual-tension arrows present, crossed; (right) sling fully slack, eye lifted off by the sling body, hand clear, tick.
6. **Fig. 6 — Decision point.** Eye cocked on the hook point, slack coming out, hand moving to hold it in the throat; thought-style callout "JUST HOLD IT TILL IT SEATS?" struck through; arrow sequence: "HOLD TAKE-UP → RE-SEAT LOAD-FREE → TAKE UP EMPTY-HANDED".

15. HSF EXPOSURE PRINCIPLE

"The hook takes the load, not the hand. The hand seats the sling and withdraws before take-up — no hand shares the throat with the load."

SH-SOP-004 · HOOK ENGAGEMENT

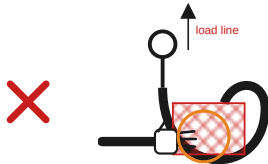
Illustration pack · Figs. 1–6 · assembled from HSF Illustration Component Library™ v1.0

Fig. 1 — Seat the sling, then get clear before take-up



The hand places the sling and withdraws — the take-up belongs to the hook alone.

Fig. 2 — A hand in the throat is under the full load line



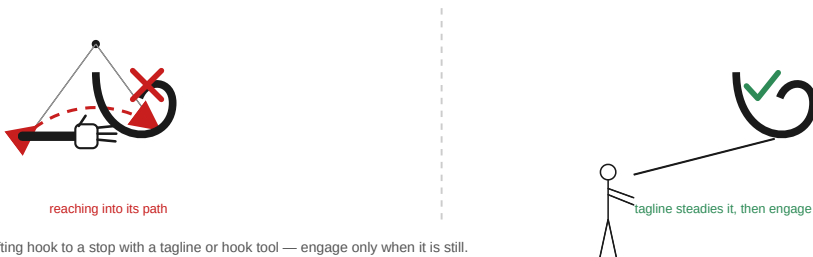
As the slack comes out the eye draws down against the hook back — a hand in the throat draws down with it.

Fig. 3 — Keep fingers out of the latch as it closes



The spring latch closes on a pinch line — operate it by its design feature, fingers clear.

Fig. 4 — Steady a moving hook with a line, never a grab



Bring a swinging or drifting hook to a stop with a tagline or hook tool — engage only when it is still.

Fig. 5 — Take the sling off only when it is fully slack



Land fully and slack right off before a hand approaches — no residual tension, fingers clear of throat and latch.

Fig. 6 — "Hold it till it seats" is the moment to stop the crane





RE-SEAT LOAD-FREE

→ TAKE UP EMPTY-HANDED

An eye that needs holding through take-up is not seated — stop the crane and re-seat, hand clear.

Illustration Standard Summary

Every figure in this library is assembled from one frozen visual language — the HSF SOP Illustration Standard™ v1.0 — so that a supervisor can read any figure in three seconds.

Hazard zone Red hatch (pinch) or dense red cross-hatch (crush) marks where the hand must not be.	Hand entry An orange circle marks the exact point the hand enters the hazard — the signature HSF element.
Force & movement One standard black arrowhead, used everywhere, shows load movement, descent, and take-up.	Preferred method A green tick marks the exposure-controlled method — tool, tagline, distance, or stop.
Wrong method A red cross marks the unsafe action. Wrong is shown left, preferred right, throughout.	Decision point An orange callout — "Just a little more?" — marks the moment that causes the injury.

The three-second test

No figure is approved unless a reader can, without reading the procedure, identify the hand entry point, the hazard zone, the wrong action, and the preferred action — and understand the lesson. Every figure title is a lesson, not a label; the illustration carries the message and the caption is secondary.

Drawing rules

Technical black line drawings only — no photorealism, no shadows, no gradients, no faces, no product branding. Human figures are simplified silhouettes; the focus is the task, not the worker. All figures are built by assembling reusable components from the HSF Illustration Component Library™ v1.0, never redrawn, which is what keeps 60 figures — and the hundreds to come — visually identical.

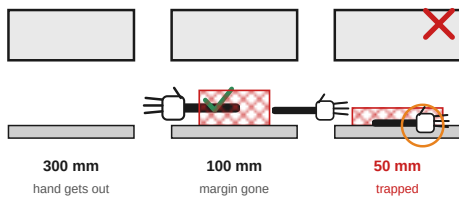
Visual Asset Gallery

Hero tiles drawn from the Foundation SOPs — ready for toolbox talks, posters, webinars, and social. Each is self-contained and assembled from the frozen component library.

HSF VISUAL ASSETS PACK™

Share-ready doctrine tiles for LinkedIn · handsafetyfirst.in · webinars · posters · toolbox talks

DISTANCE IS ESCAPE TIME

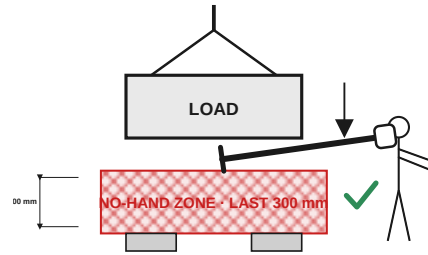


The Last 300 mm Rule™

Below 300 mm there is no escape — so there are no hands.

Hand Safety First® · handsafetyfirst.in

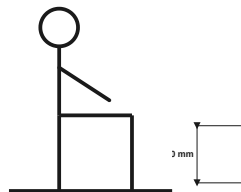
THE LAST 300 mm IS A NO-HAND ZONE



Corrections by tool from outside the gap — never by hand.

Hand Safety First® · handsafetyfirst.in

IF THE GAP IS SMALLER THAN THIS — HANDS OUT



Knee-to-floor ≈ 300 mm

A reference you can see — no tape measure needed.

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THE DECISION POINT

JUST A LITTLE MORE?

"My hand can fix this in two seconds."

You control the hand — not the load.

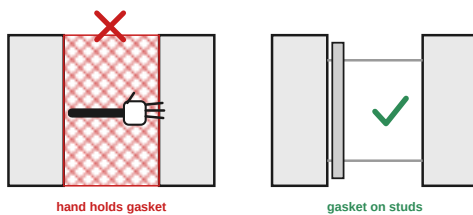


USE THE TOOL — NOT THE HAND

Naming the moment is the strongest control there is.

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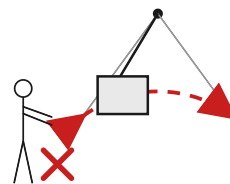
DO THE IN-GAP WORK WHILE THE GAP IS OPEN



Fit gaskets and shims before the gap closes — not by hand inside it.

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DO NOT BECOME THE BRAKE FOR A MOVING LOAD



Swing energy leaves through time and line

— never through a worker's body.

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Six hero tiles · drawn from EE-SOP-001, LG-SOP-002 and LG-SOP-003 · all assembled from HSF Illustration Component Library™ v1.0

Each tile is a self-contained 440×400 graphic — crop/export individually for LinkedIn, web, slides, or print. Pack is extensible to 10–15 tiles on the same grid.

The full component library and per-SOP illustration packs are available as separate scalable SVG files for print and digital reuse.

About Hand Safety First®

Hand Safety First® is a PSC Hand Safety Brand dedicated to the elimination and reduction of hand exposure in industrial work.

Where conventional hand-safety programmes focus on gloves and awareness, Hand Safety First® focuses on the task: identifying where the hand enters the hazard and engineering it out. The brand develops doctrine, reference publications, standard operating procedures, audit tools, and a complete visual language — all built on a single principle, that the hand should not be used as a positioning, alignment, stabilisation, retrieval, holding, impact-absorption, or correction device when a safer distance-control method can reasonably be used.

This SOP Library is one part of a wider body of work that includes the Hand Exposure Control Encyclopedia™, industry hand-exposure audit tools, and field reference material, published through handsafetyfirst.in.

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