




Quality Assurance Work Instruction

CP-00-7000-002

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1.0 POLICY/PURPOSE

Whenever there is a risk to employees from the uncontrolled release of energy, those systems are locked out/tagged out and/or Full Employee Protection is provided. This work instruction (WI) establishes the minimum requirements for the lockout/tagout of energy isolating devices whenever maintenance, servicing, etc. is accomplished to machines or equipment.

2.0 SCOPE

This WI applies to all Santa Barbara Applied Resources (SBAR), Inc. operations; and where applicable, SBAR subcontractors also comply with the relevant provisions of this WI.

3.0 REFERENCES AND DEFINITIONS

3.1 References

ISO 9001: Quality Management Systems-Requirements, Third Edition (2000-12-15)

- ISO 9001, 4.2.1(d): Documents
- ISO 9001, 7.5.1: Control of Production and Service Provision
- 29 CFR 1910.147: The Control of Hazardous Energy (Lockout/Tagout)
- Cal/OSHA Pamphlet S-515: Lockout/Blockout; and EWR 127-1, Chapter 6.
- SBAR *Lockout/Tagout Training Syllabus WI (CP-00-7000-002-A)*

3.2 Definitions


Authorized Employee: An individual (i.e., a SBAR technician) with the authority to lock out or tag out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

Affected Employee: Someone whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout situations. (**NOTE:** The authorized employee can also be an affected employee.)



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Buddy Care or Two-Man Policy: A safety precaution undertaken to place a second knowledgeable worker to assist in the performance of a hazardous task. Both workers are present to assist each other in performing the assigned task in a safe manner and provide immediate assistance if one worker should become disabled.

Energized/Hot System: Machinery or equipment that must be maintained/serviced without locking out/tagging out the machinery/equipment. (**NOTE:** Management and SBAR safety must first approve working on an energized/hot system.)

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manually operated electrical circuit breaker.
- A disconnect switch.
- A line valve.
- A block, etc.

(**NOTE:** Push buttons, selector switches and other control circuit type devices are **not** energy isolating devices.)

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Full Employee Protection: A level of safety where the use of a tagout and its associated procedures provide the same level of worker protection as if the energy isolating device was locked out.

Group Lockout: A situation where the lead technician, foreman, etc. completes lockout/tagout for the entire work crew.


Lockout: The placement of a lockout device on an energy isolating device in accordance with an established procedure, insuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device: A device that utilizes a positive means such as a lock to hold an energy isolation device in a safe position and prevent the energizing of a machine or equipment. (**NOTE:** Tape, wire, etc. are **not** lockout devices.)



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Servicing and/or Maintenance: Work place activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include:

- Lubrication
- Cleaning or unjamming of machines or equipment
- Making adjustments or tool changes
- Additional situations where the employee may be exposed to the unexpected energization or start up of equipment or release of hazardous energy.

Tagout: The placement of a tagout device on an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

4.0 RESPONSIBILITIES

4.1 SBAR Quality Manager

The SBAR Quality Manager is responsible for this WI, the associated forms, and the SBAR *Lockout/Tagout Training Syllabus WI (CP-00-7000-002-A)*. Further, the Quality Manager is authorized to revise the forms and training syllabus, as necessary.

4.2 Program Managers

Program Managers ensure lockout/tagout requirements are fulfilled on their contracts and when necessary, ensure contract specific WIs are written to supplement this WI.


4.3 Contract/Subcontract Managers

When subcontractors are working with SBAR machinery/equipment, Contract/Subcontract Managers ensure subcontractors comply with the applicable requirements of this WI as well as 29 CFR 1910.147, Cal/OSHA Pamphlet S-515, and/or other state OSHA lockout/tagout procedures, as applicable.



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4.4 Quality/Safety/Environmental (QSE) Managers

QSE Managers (or equivalent) are responsible for implementing the SBAR Lockout/Tagout Program for their respective contracts, ensuring personnel are trained, retaining completed copies of [Lockout/Tagout Analysis Forms \(Form CP-00-7000-002-B\)](#), and as necessary, publish a contract specific WI to supplement this WI. Additionally, in conjunction with appropriate SBAR management/supervision, QSE will approve all work on energized/hot systems **prior** to work commencing.

4.5 Managers/Supervisors

Managers and supervisors ensure their operations comply with lockout/tagout requirements. Managers and supervisors **will not** allow their personnel to work on energized/hot systems without management and QSE approval. Additionally, managers and supervisors ensure their personnel understand how to lockout/tagout the machinery and equipment they maintain. Further, when subcontractors are utilized, managers and supervisors, with the support of contracting/purchasing personnel, ensure subcontractor personnel understand and comply with lockout/tagout procedures.

4.6 Employees

Prior to servicing or maintaining any machinery or equipment, employees lockout/tagout the system. Employees **will not** work on energized/hot systems without the prior approval of the appropriate SBAR manager/supervisor and the applicable QSE staff.



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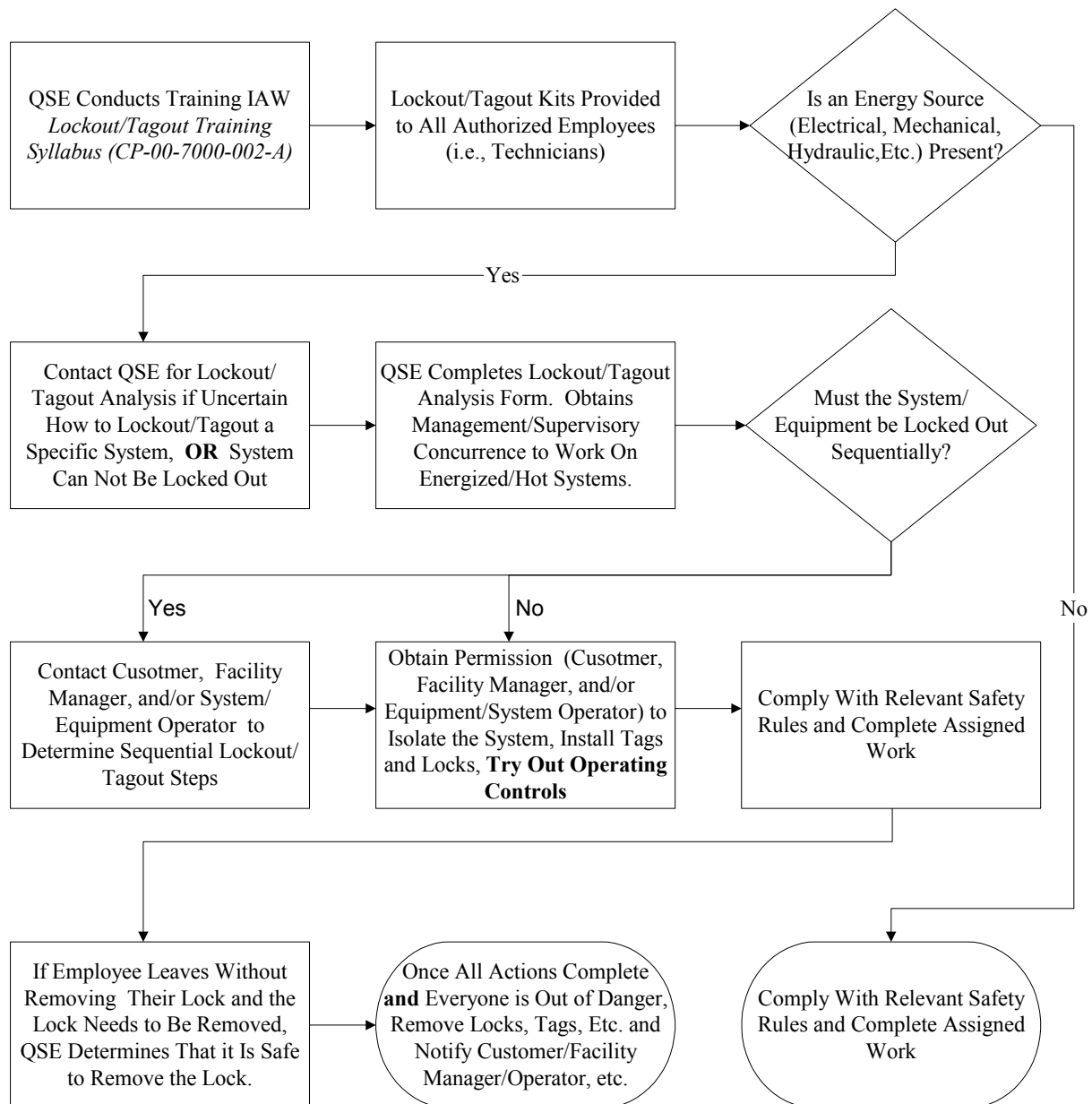
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5.0 REQUIREMENTS/PROCEDURES

Figure 1 -- Process Flow for Lockout/Tagout





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5.1 Criteria for Lockout/Tagout Devices

Lockout and tagout devices are singularly identified; are the only devices used for controlling energy; and are not used for other purpose. Lockout and tagout devices meet the following requirements:

- **Durability:** Lockout and tagout devices are capable of withstanding the environment to which they are exposed.
- **Standardized:** Lockout and tagout devices are standardized as to shape, size, etc. Only red locks are authorized, unless the customer/facility manager specifies another color for the lockout locks within their facility.
- **Substantial:** Lockout and tagout devices are substantial enough to prevent removal without excessive force. Tagout devices have a minimum unlocking strength of at least 50 pounds.
- **Identifiable:** Lockout and tagout devices indicate the identity of the employee applying the device.

5.2 Lockout/Tagout Implementation

A [Lockout/Tagout Analysis Form \(Form CP-00-7000-002-B\)](#) is performed if it is unclear how to lockout/tagout a system and/or the system must be in an energized/hot condition to perform maintenance/service. QSE performs this function along with the assistance of the applicable authorized employee. For those analyses where energized/hot systems must be worked on, management/supervision (e.g., O&M manger) confirms the analysis.

QSE maintains an adequate supply of tags, chains, locks, and lockout devices based on the lockout/tagout analysis results, anticipated usage, and work population.

Lockout/tagout Kits:


- Lockout/tagout kits, to include group lockout kits, are issued to each individual and/or facility who services and maintains machines and equipment that require the lockout of energy isolating devices.
- QSE numbers each kit, maintains a log on who has each kit, and issues kits and locks to employees. Only those locks issued by QSE are used for lockout purposes.

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- For individual lockout kits, there are two keys per lock. The employee has one key while the QSE has the spare key.
- For group lockout kits, the lead/supervisor ensures key control.
- A “master keyed” lock series is **PROHIBITED** and keys are **NOT** duplicated.

NOTE

UNDER NO CIRCUMSTANCE WILL A SBAR EMPLOYEE OR SUBCONTRACTOR EMPLOYEE SURRENDER THEIR LOCKOUT KEY TO A NON-SBAR EMPLOYEE!

5.3 Lockout/Tagout Procedures

NOTE

SOME SYSTEMS/EQUIPMENT MAY HAVE TO BE LOCKED OUT SEQUENTIALLY. SEEK ASSISTANCE FROM THE CUSTOMER, FACILITY MANAGER, AND/OR SYSTEMS/EQUIPMENT OPERATOR.

Obtain authorization to secure equipment to be worked on (i.e., customer, facility manager, and/or system/equipment operator) and notify any Authorized SBAR employees, subcontractor employees, other contractors, as appropriate. Ensure everyone understands what system/equipment is being shutdown and why. Comply with the lockout/tagout procedure of the facility where the work is being accomplished.

- Turn off power at control switch (electrical only) and lockout the switch/control panel.
- Conduct voltage checks.
- Disconnect energy at the energy isolation device. This includes electrical, pneumatic, and/or hydraulic energy isolation devices.

NOTE


GROUP LOCKOUT/TAGOUT IS ONLY AUTHORIZED WHEN APPROVED BY THE QSE OFFICE.

- Install locks and tags as appropriate on energy isolation devices. Each person/group working must install their lock while they are on the project. See Figure 2.



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- Bleed off residual hydraulic and or pneumatic pressure. If bleeding off pressure will interfere with repairs then block, pin, or brace as required. See Figure 3.
- If appropriate, install a block, bracket, stand, or similar device to keep equipment from sliding, falling, or rolling. See Figure 3.
- **TRY OUT OPERATING CONTROLS TO VERIFY THE EQUIPMENT WILL NOT OPERATE. If equipment operates, repeat above steps.**

CAUTION

IF THE EQUIPMENT IN QUESTION IS MAINTAINED BY A SUBCONTRACTOR OR ANOTHER CONTRACTOR, THAT SUBCONTRACTOR/CONTRACTOR MAY ALSO ELECT TO LOCKOUT; HOWEVER, THE OTHER COMPANY'S LOCK DOES NOT PROVIDE SUFFICIENT PROTECTION FOR SBAR EMPLOYEES. SBAR EMPLOYEES MUST INSTALL THEIR OWN LOCKS.

After performing required work, remove lock, tagout devices, blocks, etc. from energy isolation devices. After ensuring all personnel are clear of the machine or equipment, restore power.

In the event of a shift change, employees coordinate the exchanges of locks/tags between the off-duty and on-duty shift employees and remove/install their own locks/tags on the equipment or machinery.

5.4 Energized/Hot Systems


Prior to initiating any Energized/Hot Work, management (e.g., O&M Manager) and QSE complete Sections 1 and 4 of the [Lockout/Tagout Analysis Form \(Form CP-00-7000-002-B\)](#). Mandatory steps to protect employee include, but are not limited to:

- Use only experienced technicians, properly trained to do the Energized/Hot Work (**NOTE: Mandatory**).
- Buddy Care/Two- Man Policy (**NOTE: Mandatory**).
- Remove all jewelry (**NOTE: Mandatory**).
- Thoroughly inspect equipment and leads prior to use, no loose leads, wire or shielding showing on leads, all terminal screws tightened prior to energizing the equipment, etc.



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- The appropriate Personal Protective Equipment (PPE) available. Examples include:
 - Insulated footwear.
 - Electrical gloves sufficient for the voltage to be used.
 - “Hot stick.”
- Covering/isolating energized/hot circuits or systems that are not being serviced.
- “One-hand Policy,” etc.
- The development of a specific Job Safety Analysis (JSA) for the Energized/Hot Work.

5.5 Full Employee Protection

There may be situations when a lock cannot be used and in those cases, SBAR adopts alternate means to ensure full employee protection. QSE first approves those methods/means on a case-by-case basis after consultation with the applicable technician (i.e., Authorized Employee). This normally requires the mandatory stationing of an employee at the energy isolating device to prevent anyone from closing/activating the device. This employee **cannot** leave the energy isolating device alone for **any** length of time without first removing the Authorized Employee(s) from the energy source/danger area.

5.6 Special Considerations

If an employee leaves without removing their lock, QSE takes the following steps:

- **Verifies the** employee is not at the facility. Reasonable efforts are made to inform the employee that they must return to the facility to remove their lock.
- If the employee can not return to the site, QSE authorized the removal of the lock(s) **only** after consultation with knowledgeable SBAR employees and the appropriate facility manager, safety officer, or other similar officials.
- Prior to resuming work, the employee is informed that the lockout/tagout has been removed.



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If testing is required during equipment repair/lockout, all employees and tools are in the clear before equipment is energized. After testing, equipment is again deenergized and locked out before resuming work.

Only one lock, with warning tag, is required if machinery is shut down for safety reasons, awaiting parts, etc. and no maintenance is being performed. Once maintenance begins, either each worker is required to install their own lock or the lead/supervisor install the group lock.

If a system requires a visual inspection only (e.g., an energy source inside a cabinet), lockout/tagout is not required **provided** the worker does not break the plane (i.e., body, head, hands, feet, tools) of the protective structure (e.g., the inside of the cabinet).

For situations not specifically covered in this document, sound judgment is used by complying with the spirit and intent of the lockout/tagout program. Contact QSE for guidance and direction.

5.7 Training

All Authorized Employees are trained on these procedures **prior** to being allowed to lockout/tagout equipment/machinery. Use [SBAR Lockout/Tagout Training Syllabus WI \(CP-00-7000-002-A\)](#) for lockout/tagout training. This training is part of new employee safety training.

Training includes:

- Recognition of applicable hazardous energy sources.
- The limitations of tagout devices.
- The proper use and removal of tagouts.
- Specific lockout/tagout steps.

Training is documented with each employee's name and date of training. Further, lockout/tagout training is repeated whenever changes are made to energy sources or new equipment is installed. Additionally, retraining is required when an employee(s) demonstrate a lack of knowledge concerning lockout/tagout.

5.8 Periodic Inspections



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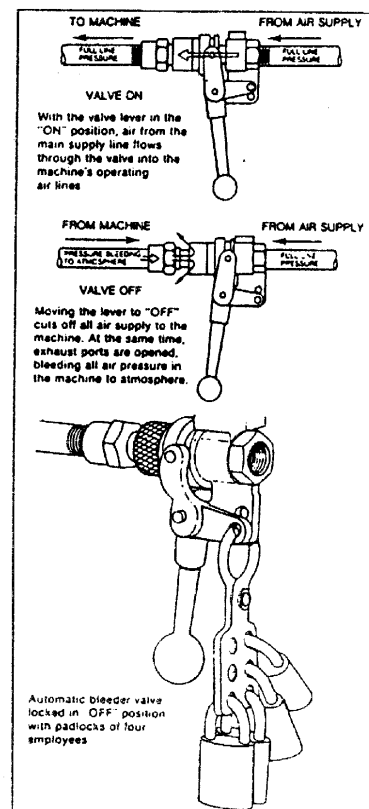
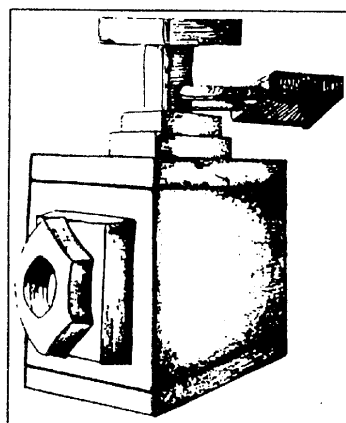
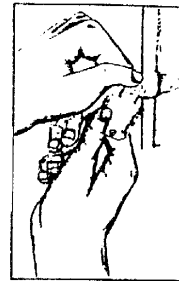
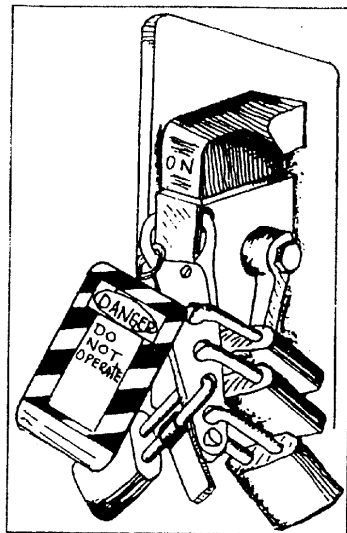
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QSE conducts and records periodic inspections to assure compliance with this program.

Figure 2 – Machinery Lockout





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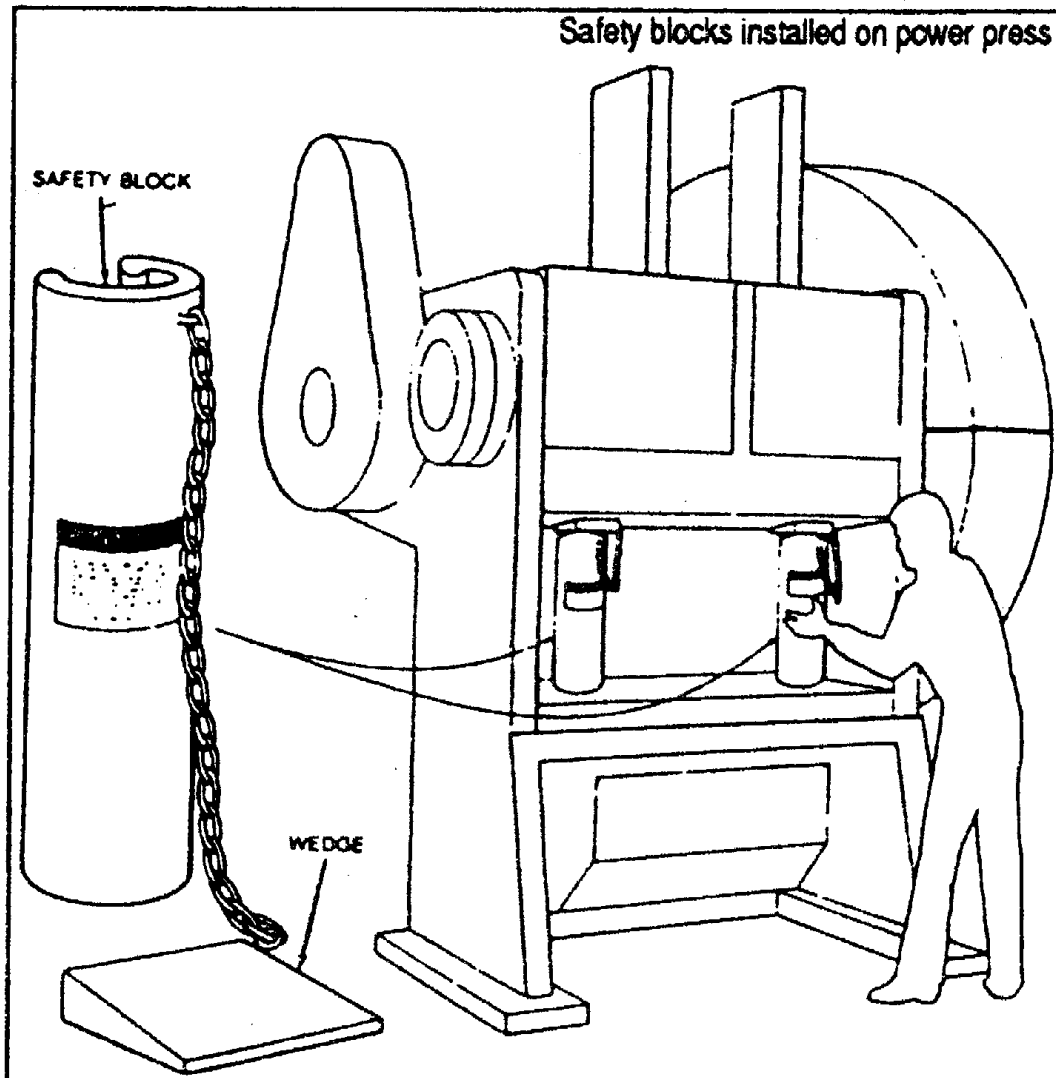
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Figure 3 – Safety Blocks





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