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Agency / Organization

CONRAIL

Title

Conrail Safety Rules

S-7 Rev. 05/11

SAFETY RULES

AND

GENERAL RESPONSIBILITIES

FOR ALL EMPLOYEES

Effective June 1, 2001

Safety Rules and General Responsibilities for All Employees

ACKNOWLEDGMENT OF RECEIPT

I have received a copy of

Safety Rules and General Responsibilities

For All Employees,

Effective June 2001
Rev. May 2011

I understand that I am required to have a thorough knowledge of and obey these rules while on duty or on company property.

Name (print) _____

Signature _____

Employee Number _____

Date _____

When you have completed the form above, return it to your supervisor.

Job Safety Briefing Guidelines

Before beginning any task, be sure that a complete job safety briefing is conducted with all individuals involved in the task. The principles of a job safety briefing are as follows:

What

A communication tool used by professionals to make sure that every team member knows what is to be done and how it is to be done safely, and that every team member is alert and focused on the job.

Why

To ensure that the job is done right the first time—no injuries, no damage, and up to Conrail standards.

When

At the beginning of the job and at any time during the job as conditions change or new tasks are started.

Where

On the job, at the work site, in the locker room, or wherever else the whole crew can get together.

How

Plan the job: What needs to be done?

- What steps will be taken? How will each step go?
- What tools, equipment, and materials will be used?
- What are the conditions of the job location?
- What are the existing and potential hazards? (Beyond the job, location, and tools, these include but are not limited to weather, traffic, time of day, Personal Protective Equipment.)
- How will work assignments be made? (Group? Individual? According to individual ability and experience?)

Talk it through: Use "how" and "why" questions to communicate specifically who does what, when, where, why, and how.

- What safety precautions are necessary?
- How to guard against existing hazards?
- What to do if a hazard emerges?
- How are special tools, materials, equipment, and methods to be used?
- What special precautions need to be taken? What if a hazard emerges?
- How to make sure that everyone on the crew stays mentally alert?

Make room for special conditions: If the job is complex enough, brief it in portions.

- What portions work best?
- What changes in job conditions require a re-briefing?

Follow up: The person in charge must check frequently to see that the briefed plans and methods are being used, that each person is carrying out assigned responsibilities, and that any hidden hazards are identified and addressed.

Seven Point Safety Message

1. Safety is the first priority.
2. Do not perform work that cannot be safely accomplished.
3. Make a safe move;
   - Not a fast move.
4. Do not take shortcuts.
5. Work safest way possible;
   - Use the safest methods.
6. Wear your protective equipment. It only can save you pain and misery.
7. Hazards—Three ways to handle:
   - Avoid, Eliminate, Compensate.

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1. GENERAL RULES

1. GENERAL RULES

1.1 Introduction

This chapter gives general rules that apply to a variety of situations. No matter where you work or what job duties you perform, these rules protect your safety. Make sure that non-employees on company property are aware of and comply with these safety rules.

If a specific safety rule is not in place, follow manufacturer's instructions.

1.1.1 Consider Safety First

If the safe course conflicts with any instructions/orders, safety is the only acceptable consideration.

If you cannot safely perform a job, do not perform it.

1.1.2 Job Briefing

Before beginning work, all employees must participate in a job briefing.

1.2 Using Safety Belts and Harnesses

Use safety belts and harnesses whenever they are provided.

1.3 Working on Equipment

Follow these precautions when working on equipment:

1. Do not allow unauthorized persons to be on locomotives, trains, equipment, or company property.
2. Do not operate or ride on any equipment unless it is necessary to perform your duties or you have been authorized to do so.

3. Do not jump from equipment, platforms, or other elevated places. Use steps or a ladder instead.
4. If you must descend without steps or a ladder:
    a. Observe the condition of the ground or floor, and avoid holes, slippery spots, and obstructions.
    b. Maintain a hand hold on a stationary object that will provide a secure hand hold, and sit with your legs hanging over the edge.
    c. Slowly lower yourself so that both feet touch the ground at the same time.

1.4 Avoiding Throwing Objects

Do not throw objects, except when required to perform your duties properly.

1.5 Keeping Clear of Suspended Loads

Keep clear of suspended loads. Stand clear while tension is applied (by either a pull or a lift) to a cable, chain, or other tackle.

1.6 Keeping Clear of Electrical Current

Keep at least 25 feet away from a dangling wire or any object that may be in contact with an electrical current. Keep others away until qualified personnel are notified and take charge.

NOTE: Qualified personnel are employees or contractors who have been trained or qualified to work on electrical circuits, know the operating voltage and service handled, and follow lockout/tagout procedures.

1.6.1 Working Around Electrical Apparatus

Follow these general requirements concerning electrical apparatus:

1. Keep the door of electrical apparatus closed and secured unless open for inspection or repairs. If doors are missing, shut off electricity to the box and tag it out of service until the doors are replaced.
2. When not using extension electric cords, hang them up to prevent a tripping hazard.
3. To protect against shock do not depend on insulation, weather proofing, covering on wire, electrical apparatus, or equipment.
4. Keep all electrical cases free of tools and other materials.
5. Never place personal items such as clothing, food, or clothes hangers in or near electrical apparatus.
6. Do not use water to extinguish a fire on or near electrical equipment, circuits, or apparatus. To extinguish fire near energized electrical circuits:
    a. Keep clear until circuits are de-energized and grounded.
    b. Use sand or the proper extinguisher if trained and qualified.
    c. Keep clear of areas where wire, cable, apparatus, or other items may fall.

1.7 Avoiding Hazardous Material

Follow these precautions to keep clear of areas contaminated with hazardous material:

1. Keep clear of areas contaminated with hazardous material.
2. If you must enter such an area after an emergency has ended, wear the appropriate protective clothing and respirator designated by your immediate supervisor.

3. If you come into contact with hazardous substances, flush the skin for 15 minutes before you eat, drink, or smoke.

NOTE: Also see Chapter 4, Using Personal Protective Equipment.

1.8 Keeping Areas Clean

Follow these precautions to keep areas clean:

1. Practice good housekeeping. Keep everything for which you are responsible orderly and clean.
2. Promptly dispose of all garbage in a trash bin, trashcan, or other designated trash receptacle.
3. If any material is saturated with flammable liquid, dispose of it in a fully enclosed metal receptacle. Do not place saturated material near a source of heat or in an area where fumes may accumulate (such as a building with poor ventilation).
4. Do not direct compressed air, gasses, or other means at another person or use it to blow dirt from a person or clothing.

1.9 Working Near Passing Trains

Follow these precautions when working near passing trains:

1. Do not perform work that will interfere with the safe passage of trains.
2. Keep at least 30 feet from passing trains and equipment, if possible. Face the direction from which the train is approaching. Watch for projecting, dragging, or falling objects.
3. Inspect all passing trains. If you detect a dangerous condition, use any available means to warn crewmembers on the passing train to stop. Notify the dispatcher.

   NOTE: Dangerous conditions include a leaning equipment trailer, an object dragging from a train, a shifted load, a derailed car, or any situation that could cause an injury or accident.

1.10 Working With Tools

Follow these precautions when working with tools:

1. Use tools only for their intended purpose.
2. Do not modify tools.
3. Before you use any tool, examine it for defects and do the following:
    a. Report any defects to your immediate supervisor.
    b. Do not use a defective tool. Tag it “Defective” and keep it separated from other tools.
    c. Make sure tools are free of mushroomed heads. Replace splintered, loose, or broken handles before use.
4. Cover the point of a pencil, screwdriver, or other pointed tool when you are carrying it inside your clothing.
5. Do not use an open umbrella on or about tracks unless it is an umbrella approved for field welding.
6. Store tools neatly so you may safely place or remove them.
7. Brace yourself when using any tool or tackle, as follows:
    a. Place your feet firmly.
    b. Maintain a braced position. Do not overreach.
    c. Keep your hands and other body parts clear of pinch points.

1.10.1 Working With Power Tools

Follow these general precautions when working with power tools.

1. Operate power-operated equipment, machinery, tool, or cutting/welding outfit **only** when standing at the intended place, and only when:

- Qualified and authorized, **or**
- Qualifying and under the supervision of a qualified employee

NOTE: A qualified person has a qualification card that must be carried while on duty.

2. Inspect the equipment or tool at the beginning of each task. Do not operate unsafe equipment.
3. Check the condition of extension cords and tool cords for defects.
   a. All electrical power tools must have grounded connections or be double insulated.
   b. All extension cords must match the rating and wiring of any device operated from that cord.
   c. Construction sites must have ground fault circuit interrupters on all receptacles.
4. Keep all items clear of the moving parts of power-operated equipment.
5. Operate power equipment or tools with safety devices or guards in place and properly adjusted, unless an authorized person is using the equipment for test purposes.
6. Do not overload or unsafely load cars, trucks, conveyors, or other transporting equipment.
7. Connect or disconnect a power tool or appliance only after the control switch is OFF.

1.11 Using Devices

When using sliding, hinged, safety, or control devices, follow these precautions:

1. Use sliding and hinged devices safely as follows:
   a. Use handles or knobs if they are provided.
   b. Properly secure the device before placing any part of your body in the opening.

c. Do not open more than one filing or tool cabinet drawer at a time.

d. When you are finished using the device, close it immediately.

2. Do not interfere with the operation of a safety device, such as an electrical fuse or pressure valve.

3. Before you operate a control lever, push button, switch, or other control device, make sure that all persons who might be affected by the action of the device are clear.

1.12 Working With Fire and Flammable Material

Follow these precautions when working with fire or flammable material:

1. Do not start or stimulate a fire in a stove or furnace or an open flame using grease, flammable liquid, or a material saturated with a flammable liquid.

2. Do not store flammable gases, liquids, or solids near a pilot light, open flame, or source of ignition.

3. Do not use gasoline or other flammable liquids for cleaning.

4. If your gloves or clothing become saturated with a flammable substance:

   a. Keep a safe distance from sources of heat and open flames.

   b. Remove and clean the clothing as soon as possible.

1.13 Handling Food and Beverages

Follow these precautions when handling food and beverages:

1. Do not eat, drink, smoke, or store food in an area exposed to toxic material.

2. Label drinking water containers, and do not use them for any other purpose.

2. RESPONSIBILITIES

2. RESPONSIBILITIES

2.1 Introduction

This chapter gives conduct, attire, and walking rules of your on-the-job responsibilities. These responsibilities include attending to your duties, wearing proper clothing, and following procedures for walking safely.

NOTE: See Rule 10.3.2 for the responsibilities of the employee in charge.

CONDUCT

2.2 Attending to Duties

Follow these precautions to prevent injuring yourself and others:

1. Be alert and attentive at all times when performing your duties.
2. Plan your work to avoid injury. Look for hazards before you start work, and either avoid hazards or protect against them.
3. Give all attention to your work. While you are on duty, do not:
   - Sleep or assume the attitude of sleep.
   - Read books, magazines, newspapers, or other material not related to your job.
   - Use or have unauthorized audio or video devices.
   - Take part in scuffling, practical jokes, or horseplay.
   - Engage in any activity that is not directly associated with your duties.
4. If you are subject to federal, state, and municipal laws or regulations of the Bureau of Explosives, familiarize yourself with all requirements and avoid violations.
5. If possible, do not rely on the watchfulness of others. Protect your own safety.

6. If you are not sure what course of action to take, always take the safe course.
7. Immediately inform an employee if he or she is not complying with the safety rules.
8. Do not use personal mobile/cellular telephones if they interfere with your duties. Restrict use to emergency calls only.

2.2.1 Supervisory Duties

Immediate supervisors have the following responsibilities:

1. Be responsible for the safety, instruction, and performance of all employees under your jurisdiction and inform supervision of all injuries and accidents.
2. Inform employees of the general plan and procedure to follow before starting work.
3. Make definite work assignments.
4. Supervise work involving unusual hazards and discuss specific procedures to protect against them.
5. Promptly advise supervision of employees who resist correction or require additional formal instruction on safe work practices.

2.3 Avoiding Prohibited Conduct

Avoid prohibited conduct on the job, including being intoxicated, smoking in non-designated areas, and possessing firearms.

2.3.1 Intoxication

Do not use alcoholic beverages or intoxicants, have them in your possession, or be under their influence while on duty. In addition, do not possess, use, or sell alcohol, intoxicants, drugs, narcotics or other controlled substances while on duty or on company property.

2.3.2 Smoking

Follow these smoking regulations:

- Do not smoke in areas designated with “No Smoking” signs.

- Do not smoke in any Conrail buildings.
- Do not smoke near explosives, flammables, and acids, whether these materials are in use or in storage.

Ensure that non-employees comply with this rule.

2.3.3 Firearms

Do not possess or use firearms or other weapons while on duty or on company property, unless your duties specifically require firearm or weapon possession.

2.4 Taking Medications While on Duty

If you are taking medication while on duty or before, make sure that the medication will not affect your alertness, coordination, reaction time, or safety. Follow these precautions:

1. If you are taking prescribed medication, explain your work assignments to your physician or pharmacist. Follow any precautions he or she gives you.
2. If you experience any adverse effects (such as confusion or dizziness) while on duty, stop work immediately and inform your immediate supervisor.

2.5 Responding to Injuries

Follow these precautions to prepare for and respond to injuries:

1. Know the location of first aid kits, lifesaving equipment, and firefighting equipment. Use such equipment only for its intended use.
2. If you are injured, respond as follows:
    a. Obtain first aid or medical attention if necessary.
    b. Inform your immediate supervisor. If your immediate supervisor is not available, inform him or her as soon as possible, but not later than 24 hours from the time and the day you were injured.

2.5.1 Inspecting Equipment That Caused Injuries

When persons are injured by appliances on engines or cars, or by tools or machinery, immediately inspect the equipment. If it is defective, properly identify it, protect it, and remove it from service until an injury analysis is complete.

2.5.2 Reporting Defects

Report all railcar equipment defects (broken steps, walkways, handrails and valves, etc.) to your supervisor as soon as possible.

ATTIRE

2.6 Wearing Proper Clothing

Wear clothing that will allow you to perform your duties safely and will not interfere with your vision, hearing, or the free use of your hands and feet. Follow these precautions:

1. Wear clothing that gives ample body, arm, and leg protection.
    a. Wear waist-length shirts with sleeves.
    b. Wear short sleeves only if your duties do not require full arm protection.
2. Wear pants that cover your legs.
3. Do not wear loose clothing or dangling accessories or jewelry. If you wear jewelry, tie or cover it to prevent it from being caught in a moving part or contacting energized equipment. Exposed body piercing jewelry is prohibited.
4. When you are performing grinding, cutting, or welding operations, wear flame retardant clothing and cuffless pants or overalls.
5. Whenever possible, wear suitable gloves to protect your hands and arms.
6. Wear appropriate clothing to protect from wind chill. Figure 2A shows wind chill conditions that require additional protection.

Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)										
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	*LITTLE DANGER* In < hr with dry skin. Maximum danger of false sense of security				*INCREASING DANGER* Danger from freezing of exposed flesh within one minute.				*GREAT DANGER* Flesh may freeze within 30 seconds.			
	Trenchfoot and immersion foot may occur at any point on this chart.											

* Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

Figure 2A. Wind Chill Chart

2.7 Wearing Proper Footwear

This section contains footwear classifications, safety precautions for footwear, and procedures for wearing street and safety footwear.

2.7.1 Footwear Classifications

Footwear is classified as street footwear or safety footwear.

Street Footwear

Street footwear is footwear of sturdy constructions with an enclosed toe. Examples of street footwear are sneakers, women's heeled shoes, and loafers. Sandals, flip-flops, and similar footwear are **not** street footwear.

Safety Footwear

Safety footwear is footwear of sturdy construction at least 6 inches high that covers the entire foot. The heel must be between 1/2 and 2 inches high, measured from the sole to the bottom of the heel plate. See Figure 2B.

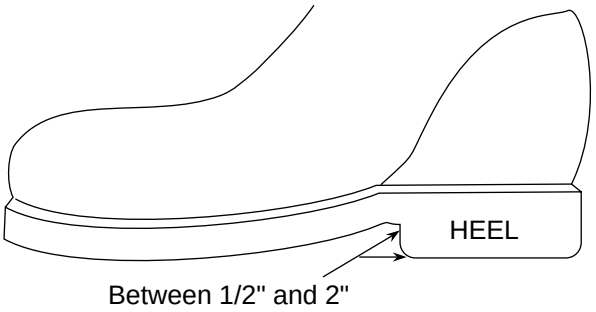


Figure 2B. Footwear Diagram

Safety footwear must have flexible, non-slip soles. Puncture-proof soles are recommended.

Safety footwear must meet or exceed the requirements of the American National Standards Institute for safety footwear, Z41.1

class 75. Check the label or tag to be sure that safety footwear meets this standard.

2.7.2 Safety Precautions for Footwear

Follow these precautions when wearing footwear:

1. Keep footwear completely laced, buckled, zipped, or otherwise fastened if it is equipped with such fasteners.
2. Do not wear footwear with:
    - Loose, thin, cracked, ripped, or worn soles.
    - Wedge or platform soles.
    - Exposed toe caps.
    - Ripped or worn uppers or heels.
    - Dangling laces that present a tripping hazard.
    - Metal plate or cleat on the sole or heel.
    - Heels more than 2 inches high.
    - Other features that are unsafe, as determined by your supervisor.

2.7.3 Wearing Street Footwear

Wear street footwear when you are:

- Working in an office (Corporate offices, Division offices, and locations designated by local supervision).
- Going to or from your personal vehicle when reporting on or off duty.

2.7.4 Wearing Safety Footwear

Wear safety footwear when you are:

- Not working in an office.
- Walking in yard, shop, warehouse, or other non-office area.
- Working as a mail clerk, jitney driver, or janitor.

2.8 Wearing Proper Hairstyle

Wear head and facial hairstyles that allow you to perform your duties safely. Hairstyles must not obscure vision or interfere with personal protective equipment. Be sure to secure long hair back to prevent it from contacting machinery or electrical equipment.

NOTE: If your duties require using a respirator, do not wear facial hair that would prevent a proper fit test or that would interfere with a fit test of other required equipment.

WALKING

2.9 Walking Safely

Follow these precautions to walk from one place to another safely:

1. Do not run.
2. Keep your hands out of your pockets.
3. Do not jump over or straddle excavations, holes, or open pits. Walk around them.
4. Be alert for tripping and slipping hazards.
5. Keep walkways free of obstructions and tripping or slipping hazards. Remove hazards if possible or report them to your supervisor.
6. While walking or working on or near equipment, have enough light to move about and work safely. Use lanterns, flashlight, or portable lights if needed.
7. Do not walk, step, rest your foot, or sit on the following equipment unless you are specifically required to do so to perform your duties:
   - Rail
   - Frog or switch
   - Guard rail
   - Pipe
   - Interlocking apparatus
   - Connection devices

8. Walk or stand on track, driving lane, or highway vehicle parking area only when your duties require. Walk against the current of traffic and look for approaching highway vehicles.
9. When vision is restricted, walk carefully. Avoid carrying long objects through steam or smoke.
10. Look in the direction you are walking. If you must look in another direction, stop walking.
11. Before crossing each driving lane or parking area, look in both directions to make sure the way is clear.
12. When stooping, determine your available clearance before returning to an upright position to avoid contact with any object. Wear a hard hat if needed.
13. When going to and from work, use designated routes.

2.9.1 Walking on Slippery Surfaces

Follow these precautions for a slippery surface:

1. Avoid walking on a slippery surface.
2. If you must walk on a slippery surface:
    a. Use a shovel, tool, or equipment to clean the surface of snow, ice, and other slipping hazards.
    b. Scatter salt, sand, or antislip material designed to increase traction on a slippery surface.
3. If cleaning the surface is impractical:
    a. Wear anti-slip footwear, such as non-skid boots, rubbers, or “ice-eze.”

        NOTE: Do not wear metal ice-eze on or around electrical equipment or on locomotive walkways.

    b. Turn your feet outward and take small steps.

2.9.2 Walking Through Halls, Stairways, and Passageways

Follow these precautions when walking through halls, stairways, and passageways:

1. Keep to the right.
2. Use a handrail if one is provided.
3. Use each step of a stairway.
4. Do not run up or down steps.
5. Give way to a person with a load.
6. When you approach a corner, look around it before proceeding.
7. Be careful when passing doors that open directly into the passageway.
8. When you approach a doorway, look into it before proceeding.

2.10 Walking on or Near and Crossing Tracks

Expect equipment to move on any track, in any direction, at any time. Walk against the current of traffic and keep a sharp lookout in both directions. Keep as far as possible from passing equipment and look out for material hanging or dragging from equipment that may obstruct walkways.

NOTE: Also refer to Chapter 10, Protection When Working in Yard and on Tracks.

2.10.1 Walking on or Near Tracks

When you are walking on or near tracks, driving lanes, or highways, look both directions for equipment before you:

- Foul or cross tracks, driving lanes, or highways.
- Cross between or around the end of equipment.
- Move from under or between equipment.
- Get on or off equipment.

- Lean beyond the line of equipment.
- Operate a switch or derail device.

NOTE: Walk straight across or around when possible.

2.10.2 Crossing Tracks

Follow these precautions when crossing tracks:

1. Look both ways, then take the shortest route. If you must cross more than one track, stop and look both ways before crossing each track.
2. Cross tracks at least 25 feet from standing equipment.
3. Do not pass between cars standing less than 50 feet apart on the same track unless:
   - It is absolutely necessary and safe to do so.
   - You have received three-step protection from the Engineer if a locomotive is on the track. (See Glossary for definition of three-step protection.) Or, the track is under Blue Flag Protection by Mechanical Department employees.
4. Do not cross over between standing equipment unless:
   - It is necessary to do so.
   - You receive permission from the employee in charge of the track or the employee using the track.
   - You do the following:
     (1) Keep your foot clear of the knuckle, cutting lever, space between the coupler shank and end of car, or other pinch point.
     (2) Report clear of equipment after the crossover is complete.
5. **Never** cross over between moving equipment.

6. Avoid crossing in front of a moving train or equipment. If you must cross in front of a moving train or equipment, make sure that you can reach the opposite side at least 15 seconds before the train or equipment arrives.
7. Avoid passing under or over a train, vehicle, or trailer.

3. WORK ENVIRONMENT

3. WORK ENVIRONMENT

3.1 Introduction

This chapter gives rules describing various environments you perform work in, including guidelines for working in pits or excavations, confined spaces, elevated places, offices, elevators, and lunch rooms. It also gives guidelines for administering first aid and preventing bloodborne/communicable diseases.

3.2 Working in Pit or Excavation

This section gives safety rules for working in a pit or excavation including identifying underground utilities, keeping clear of equipment, keeping safe distance from the edge, and securing the sides of an excavation.

3.2.1 Safety Precautions

Follow these precautions when working in a pit or excavation:

1. If the cover is removed from a manhole, pit, or other opening, protect the opening by either:
   - Assigning an employee to warn people approaching the opening, **or**
   - Placing suitable guards around the opening, such as temporary railings, barricades, high visibility barrier tape, or stakes.
2. If an excavation is near a track or where a person may walk, protect the excavation as in step 1 above, and mark it with lights if necessary.
3. If a suitable walk is not available across an open pit, manhole, or other excavation, walk around it. Do not step on it or jump across it. Do not straddle it.
4. Do not work in a trench more than 4-1/2 feet deep unless:
   - An entrance or exit is within 25 feet of your work area, **and**
   - The excavation is properly sloped or shored.

5. Store excavated material and other material safely away from the excavation. The minimum safe distance is equal to one-half the excavation depth.

3.2.2 Working in Turntable or Transfer Pit

Before you enter a turntable or transfer pit that contains machinery, place a private lock and a warning tag (S 105) on the table controller.

EXCEPTION: You do not need to use a private lock and warning tag if you enter the transfer pit for test purposes and are constantly supervised.

3.2.3 Identifying Underground Utilities

Follow these precautions before you excavate:

1. Call the local utility company using the one call system for your location. Ask the utility company to mark its underground utilities.
2. Identify any Conrail underground cables and pipelines and mark them.
3. Avoid hitting underground utilities, cables, and pipelines when you excavate.

3.2.4 Keeping Clear of Equipment

Do not work in an excavation where equipment is operating unless:

- You are required to do so to perform your duties, **and**
- You can keep at least 25 feet away from the equipment.

3.2.5 Keeping Safe Distance From Edge

Follow these precautions to keep a safe distance from the edge:

1. Do not straddle a pit, excavation, or trench. Keep a safe distance from the edge of a pit, excavation, or trench, unless your duties require you to work near or in it.
2. Keep equipment far enough from the edge of a pit, excavation, or trench to prevent equipment vibrations from straining excavation walls.

3. Verify that a competent person will inspect the excavation, adjacent areas, and protective systems daily to ensure that the sides of the excavation are sound and free of signs of a cave-in.

3.2.6 Securing Sides

Do not work in an excavation more than 4-1/2 feet deep unless the sides are safely shored or sloped.

Angle/Ratio	Kind of Earth
90°	Solid rock, shale or cemented sand and gravels
63°/1/2:1	Compacted angular gravels
45°/1:1	Recommended slopes for average soils
33°/1 1/2:1	Compacted sharp sand
26°/2:1	Well rounded loose sand
Note: Clays, Silts, Loams or Non-Homogenous Soils Require Shoring and Bracing. The Presence of Ground Water Requires Special Treatment.	

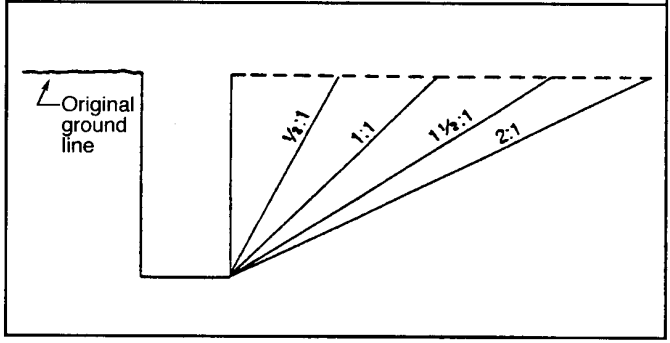


Figure 3A. Angle of Repose for Sloping the Sides of Excavations

3.3 Working in Confined Space

This section gives safety rules for working in a confined space, including protecting and entering the confined space.

3.3.1 Safety Precautions

Confined spaces, such as sewers and manholes, can present hazards from accumulated gases and other contaminants. These hazards can

endanger your health, your physical safety, or both. Do not enter a confined space unless you have been trained and until it has been monitored for contaminants. If contaminants are detected, ventilate the confined space or wear personal protective equipment.

NOTE: Also refer to Chapter 4, Using Personal Protective Equipment.

3.3.2 Protecting Confined Space

If the cover is removed from a confined space, protect the opening by either:

- Assigning an employee to warn people approaching the opening, **or**
- Placing suitable guards around the opening, such as temporary railings, barricades, or high visibility barrier tape.

3.3.3 Entering Confined Space

NOTE: This section gives safety precautions for entering a confined space. For the full procedure, refer to Conrail's Policies and Procedures for Entry Into Confined Spaces.

When entering a confined space:

1. Open and secure the confined space.
    a. Remove the manhole cover using a bar designed for this purpose.

        CAUTION: Do not use an open flame to loosen the manhole cover. The confined space could contain explosive fumes.

    b. Remove the manhole cover completely. Clean the rim of the opening to prevent debris from falling into the confined space while you are working.

    c. Lock out or tag out the confined space if necessary.

    d. Make sure that any electrical equipment you are using is 12 volts or ground fault isolated. Do not use ground fault circuit interrupters in the confined space.

2. Monitor the confined space.
    a. Determine the presence and concentrations of any contaminants in the confined space by monitoring the air without the ventilation equipment.
    b. If a contaminant is found, ventilate the confined space.
    c. If ventilation is impossible, use a supplied-air respirator.
3. Ventilate the confined space, if necessary.
    a. Use a ventilation system and duct system.
    b. Monitor the confined space again. If contaminants are still detected, use a supplied-air respirator.
    c. Continue the ventilation while any person is in the confined space.
4. Wear personal protective equipment, if necessary.
    a. Wear breathing apparatus and/or personal protective equipment appropriate to the contaminant(s).
    b. Be aware that you can't always detect contaminants or gas with your senses. If you experience dizziness, headache, or a rapid heartbeat, walk into open air immediately.
5. Enter the confined space.
    a. Station an observer at the entrance to the confined space. This person must be:
        - Trained in rescue procedures, **and**
        - Equipped as in step 4.
    b. Maintain communication between the observer and the person inside the confined space.
    c. Use a life line attached to a tripod rescue system. To prevent the entrant's body from jamming in the opening, attach the life line to the entrant's fall protection harness in the designated place on the harness.

3.4 Working in Elevated Places

Your job duties may require you to work in elevated places—on ladders, scaffolds, platforms, bridges, or on top of equipment. In these situations, you must take care to protect yourself and those working underneath you.

3.4.1 Safety Precautions

Follow these precautions when working in elevated places:

1. Look before you step in any direction. Keep clear of slipping, tripping, or stumbling hazards.
2. Work on a roof, platform, or other elevated part of a structure only after it has been inspected and found to provide adequate support.
3. Keep away from under overhead work unless your duties require. If you must pass under overhead work, notify the workers and ensure that they do not allow objects to fall. Wear a hard hat and safety goggles.
4. Rope off space or take other precautions to keep the public from passing underneath work being performed. Provide protection from falling objects if needed.
5. When you must walk or work above employees working on a lower level, notify them of your intentions.
6. Use a stable support in good repair for climbing, sitting, or reaching. Inspect it before using and do not use an improvised or unstable support.
7. Use a ladder or steps (if available) when getting on or off a standing train, equipment, machinery, vehicle, or other elevated place.
8. Use a hand line to convey tools, material, or other objects to and from those in an elevated position.

9. Do not climb or slide down a cable, rope, pipe, or rod. Use a ladder or stepped pole instead.
10. Observe all objects in the immediate area and be positioned to avoid being struck by a falling object.

3.4.2 Conveying Objects to and From Elevated Places

Use a hand line (and suitable container, when necessary) to convey tools, material, or other objects to an employee in an elevated place and to lower objects when it is not safe to drop them. Never throw them to someone in an elevated position.

Drop tools only if you know it is safe and you warn others in the area.

NOTE: When you are working on an elevated place near or over a track or highway, keep all objects clear of passing trains or vehicles.

3.4.3 Determining When to Use Fall Protection

Use fall protection equipment when working more than 10 feet (unless on a bridge, then more than 12 feet) above the ground, water, or other surface. Fall protection equipment is usually a combination of ladders, scaffolds, catch platforms, temporary floors, safety lines, and harnesses and lanyards. However, if this equipment is impractical, use safety nets.

EXCEPTION: Fall protection is not required for inspection and maintenance work performed on a bridge exclusively between the rails.

3.4.4 Using Safety Body Harness

When your duties require that you wear an authorized safety body harness with lanyard:

1. Make sure the lanyard is not twisted.
2. Keep the tongue or snap away from your body.

3. Adjust the safety strap, rope, or cable to allow only the slack needed to perform your work, unless a scaffold or other suitable protection is provided.

3.4.5 Determining When to Use Body Harness

Use body belts or safety body harnesses in the following situations:

- Working in a ballast car over an unloading pit
- Working outside an elevated window
- Working on a steep pitched roof
- Working on a hillside, cliff, or embankment
- Being on or in a drop-bottom car being unloaded
- Being in a dangerous position on a bridge, building, or other structure
- Working on a bridge that does not have handrails and you are not between the rails
- Working in a coal bunker, storage tank, or other similar enclosure
- Working in any other operation or situation involving an unprotected falling hazard (the immediate supervisor will determine the necessity to use safety harness and lanyards).

3.4.6 Working Over Water Without Fall Protection

Some duties may require working over water without fall protection. Follow these precautions when you are working over water without fall protection and the water is more than 4 feet deep, or when you are working where there is any danger of drowning:

1. Wear a buoyant work vest or US Coast Guard-approved life jacket.
2. Station ring buoys with 90 feet of line throughout the work area no more than 200 feet apart.
3. Have at least one skiff or equivalent lifesaving device available at all times.

3.4.7 Using Boatswain Chair

Follow these precautions when being hoisted in a boatswain chair:

1. Stay seated.
2. Wear a safety harness with a lifeline.

3.5 Using Ladders

This section gives safety rules for inspecting, using, and storing ladders, as well as precautions for using extendible ladders and step ladders.

3.5.1 Safety Precautions

Follow these precautions when using ladders:

1. Do not splice short ladders together or use more than two sections of a sectional ladder.
2. Use only fiberglass ladders. Wood and aluminum ladders are prohibited.
3. Do not make a temporary repair to the ladder.
4. Keep the ladder clean and free of grease, oil, mud, snow, wet paint, or other slippery material.

3.5.2 Inspecting Ladders

Follow these precautions when using ladders:

1. Inspect a ladder before you use it, including hooks ties, and other extendible ladder attachments.
2. If you find defects, repair them before using it.
3. If you cannot repair the ladder, keep it separate from serviceable equipment and tag it with a warning tag.

3.5.3 Using Any Ladder

Follow these precautions when using any ladder:

1. Place the ladder safely as follows:
   a. Set the ladder on a firm, level surface.
   b. If the ladder could come into contact with electrical current, use a non-conductive ladder instead.
   c. If a door could hit you or the ladder, lock or otherwise secure the door shut.
   d. If a person, equipment, machinery, or a vehicle is likely to collide with the ladder, assign an employee to guard the ladder or erect a protective barrier before you use the ladder. Suitable barriers include drums, barricades, and plastic tape.
2. Be careful as you climb up and down the ladder:
   a. Make sure the soles of your shoes are clean.
   b. Do not use a ladder occupied by another person.
   c. Face the ladder when you are climbing up or down.
   d. Keep your body as close to the ladder as possible.
   e. Do not step on ladder rungs or stirrups with the ball of your foot. Step on the rungs with your instep so that your heel touches the ladder rungs, if possible.

      EXCEPTION: If you are climbing a permanently attached ladder with a narrow distance between the ladder and the object, turn your foot sideways slightly and step on the rungs with the ball of your foot.
   f. Do not carry an item in your hand or about your body if the item could interfere with safe movement. Use a hand line to raise or lower tools or other items.
   g. Do not reach more than an arm's length from the side of the ladder, unless you have a firm hold with one hand, the ladder is secured at the top, or you are wearing a safety harness and lanyard adjusted to 2 feet of slack or less.

3. Get off the ladder safely as follows:

    a. Before you get off the ladder, observe the ground conditions to avoid hazards.

    b. Keep your hands securely on the ladder until your feet are firmly placed on the ground, floor, or pavement.

3.5.4 Using Extendible Ladder

Follow these precautions when using an extendible ladder:

1. Place the ladder safely as follows:

    a. Use a ladder equipped with spikes or non-skid bases. Otherwise, securely lash it at the top or have someone at the base of the ladder hold it.

    b. Place the top of the ladder against a stable support that will not allow the ladder to slip. Tie the top of the ladder to the support. Attach a board across the top of the ladder before leaning it against a window frame.

    c. If you must prevent the top of the ladder from moving sideways, tightly snub the top of each side rail at about a 30-degree angle to a ground fastening.

NOTE: You cannot depend on any ladder under all conditions. Securely lashing a ladder is preferable to assigning someone to hold it.

    d. Secure the base when you raise the ladder.

    e. Do not set up a ladder when it is extended.

    f. Set the ladder at a 4 to 1 pitch. (See Figure 3B.)

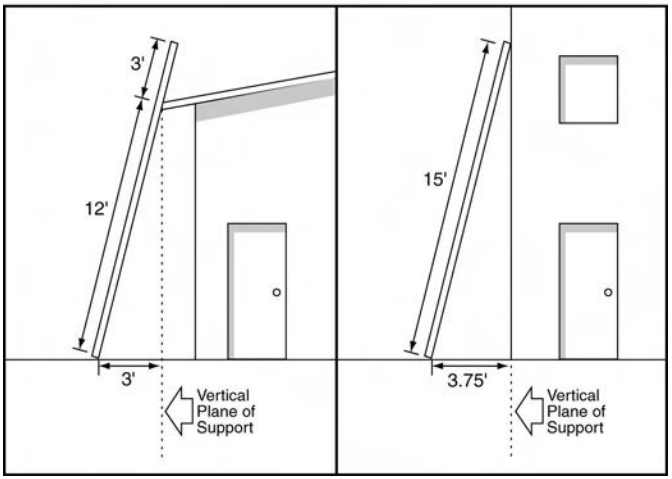


Figure 3B. Setting Up an Extendible Ladder

g. If you must place the top of the ladder against a cable, test the cable as follows:

(1) Throw a rope or hook the ladder over the cable.

(2) Pull on the rope or push on the ladder to determine if the cable will provide a stable support.

h. Extend the ladder at least 3 feet beyond the roof line or the edge of the working surface.

i. Raise and lower the top portion of an extendible ladder using an approved rope—not a sash cord—and other necessary attachments. Keep your hands and other body parts clear of the downward movement.

2. Be careful as you climb up or down the ladder:

a. Before you climb the ladder, hook the extension ladder locks securely over the rungs and tie the lifting line to the base.

b. Maintain a firm grip on the ladder, as follows:

(1) Hold the side rails with both hands while you are climbing. Do not hold the rungs.

(2) When you are not climbing, keep one hand securely on the ladder, unless you are wearing a safety harness and lanyard and you have firm footing.

c. Do not shift or "walk" the ladder while you are standing on it.

d. Do not stand on the top three rungs or any part of the ladder above the support point.

3.5.5 Using Step Ladder

Follow these precautions when using a step ladder:

1. Fully open the ladder and set the spreader.
2. Set the ladder on a firm, level surface. Make sure all four legs touch the ground. Otherwise, secure it.
3. Do not stand, climb, or sit on the top, brace, or back section of a step ladder.

3.5.6 Storing Ladders

Follow these precautions when storing a ladder:

1. Make sure the ladder will not be exposed to weather or excessive heat.
2. Store the ladder in an area with good ventilation.
3. Store the ladder vertically, if possible. If you must store a ladder horizontally, prop the ladder at enough points to prevent it from sagging.

3.6 Using Scaffolds and Platforms

This section gives safety rules for inspecting scaffolds and platforms, using scaffolds and platforms, and moving scaffolds.

3.6.1 Safety Precautions

Follow these precautions when using scaffolds and platforms:

1. Use acceptable material for scaffolds, platforms, and handrails.
2. Do not lean or reach more than an arm's length from the edge of a scaffold or platform unless you:
   - Keep one hand securely on the scaffold or platform, **and**
   - Wear a safety harness and lanyard adjusted to 2 feet of slack or less.

3.6.2 Inspecting Scaffolds and Platforms

Follow these precautions before you use scaffolds and platforms:

1. Inspect a scaffold or platform before you use it, including the platform planks, handrails, toe boards, fastenings, and other parts.
2. If you find any defects, repair the scaffold or platform before you use it.
3. If you cannot repair the scaffold or platform, keep it separate from serviceable equipment and tag it with a warning tag (S 105).

3.6.3 Using Scaffold or Platform

When using a scaffold or platform, make sure that:

1. The scaffold or platform is secured to prevent movement, tilting, or settling.
2. The floor is at least 16 inches wide, unless the supervisor authorizes a 12-inch plank where space is limited.
3. The floor boards are at least 2 inches thick, are scaffold grade, and are equipped with end stops or otherwise secured.
4. The gap between the floor boards and the gap between the floor and toe boards are less than 1/4 inch each.
5. The scaffold or platform is equipped with:

- Handrails 39 to 45 inches high, **and**
- Midrails and toe boards at least 4 inches high and secured to the scaffold.

6. The size of the working area (in square feet) does not exceed four times the size of the bottom.

   NOTE: If the size of the working area exceeds four times the size of the bottom, the tower must have guys, braces, or outriggers.

3.6.4 Moving Scaffold

Follow these precautions before moving a scaffold:

1. Remove both plank ends, or secure them to a support by means other than the end stops.
2. Secure handrails and toe boards against shifting or falling.
3. Remove or secure any objects on the platform.

3.7 Office Safety

3.7.1 Handling Office Materials

Follow these precautions when handling office materials:

1. Carry knives, pencils, pins, scissors, and letter openers in a manner to avoid accidents. Use them for their intended purpose only.
2. When handling papers, be careful to avoid cuts. Pick up a sheet of paper by the corner, not the sides.
3. When working with a stack of papers, use a rubber finger guard.
4. Use a letter opener to open an envelope or package sealed with tape.
5. Use a wetting device, not your tongue, to seal an envelope.
6. Remove staples with a staple remover, not your fingernails.
7. Avoid throwing objects such as cards, paper clips, etc.

8. Do not touch a hot light bulb. Wait for it to cool.

NOTE: Light bulbs can reach temperatures over 400° F.

9. Avoid spills or burns by using a tray to carry coffee or hot liquids in cups for any distance. Wipe up any spills.
10. Do not set beverages on or around electrical machinery.
11. Do not try to lift bulky or heavy equipment or material alone. Get someone to assist you.

3.7.2 Storing Office Materials

Follow these precautions to store office materials safely:

1. Do not leave knives, pencils, pins, scissors, or letter openers on the edge of a desk or in any place where they could cause injury.
2. Store razor blades, thumbtacks, and other sharp objects in a closed container.
3. Store pencils flat. Do not carry a pencil behind your ear.
4. Store heavy objects close to the floor.
5. Store materials inside cabinets, files, and lockers, not on top.
6. Do not stack boxes or supplies higher than 6 feet.
7. Do not store paper, boxes, or other combustibles near machinery or electrical equipment that could overheat or spark and ignite the material.
8. Make sure rolling ladders and stands for reaching high storage places have brakes that operate automatically when you step on them.

3.7.3 Using Drawers and Cabinets

Follow these precautions when using drawers, cabinets, and other office furniture:

1. When cleaning or reaching into a drawer:
    a. Look for and avoid the sharp edges of utensils and other objects.

b. Look for and keep your fingers and hands clear of pinch points.

2. Close filing cabinet drawers and desk drawers when not in use. Never open more than one drawer at a time.

3. Arrange the contents of filing cabinets so that the contents do not overbalance the cabinet. Distribute the contents throughout the cabinet, not in the top drawers.

3.7.4 Using Office Furniture

Follow these precautions when using a chair, stool, or other piece of office furniture:

1. Hold the chair in place with your hand before sitting down.
2. Keep all the legs of the chair or stool on the floor while using it as a seat.
3. Do not scoot across the floor while sitting on a chair.
4. Do not lean back in a chair and place your feet on a desk.
5. Report sharp edges, splinters, or defective parts on office furniture. Never use defective furniture.

3.7.5 Placing Office Machines

Follow these precautions to place office machines safely:

1. Do not place an office machine near the edge of a table or desk.
2. If an office machine could vibrate or move during operation, secure it.
3. Do not place a fan on the floor unless it is a tall fan designed for floor use. Do not place the fan where it could cause injury.

3.7.6 Disposing of Material

Do not use a wastebasket to dispose of sharp objects, glass, or other articles that could cause injury. To dispose of such articles:

- Place them in a separate container designed and labeled for that purpose, **or**
- Wrap, mark, and place them beside a wastebasket for disposal.

3.7.7 Handling Telephone and Electrical Cords

Follow these precautions for handling telephone and electrical cords:

1. Make sure that telephone and electrical cords in walking areas are encased by floor molding.
2. To keep electrical cords from fraying or bending:
    a. Do not remove the plug from the receptacle by pulling on the cord. Grasp the plug instead.
    b. Avoid bending an electrical cord sharply around an obstruction.
    c. Do not use a floor-mounted electrical outlet as a foot rest.

3.7.8 Cleaning, Adjusting, and Maintaining Office Machines

Follow these precautions when cleaning, adjusting, and maintaining office machines:

1. Do not use flammable fluid to clean an electrically powered office machine.
2. Follow these precautions if you see an office machine smoking or sparking, or if you notice a tingling sensation when you touch the machine:
    a. Unplug the machine.
    b. Place an “Out of Order” sign on the machine.
    c. Report the defect to your supervisor.
3. Report any sharp edges, splinters, or defective parts on office equipment to your supervisor. Remove the equipment from service with a warning tag (S 105).

4. Do not adjust or clean an office machine while it is moving. If a machine jams, turn off the power before you try to remove the obstruction.
5. Do not handle an electric fan while it is moving. Do not use a fan without a safety guard.
6. Cover all exposed rotating gears, belts, couplings, and other moving parts with guards if fingers, jewelry, or hair might get caught in them.

NOTE: Have only qualified personnel maintaining the machines remove the guards while using the proper lockout tagout procedure.

3.7.9 Using Paper Cutters

Be careful when operating a paper cutter, trimmer, or power punch. Keep your fingers clear of the cutting blades. Put blades down after use.

3.7.10 Using Doors

Follow these precautions to use doors safely:

1. Avoid the range of travel of a solid door.
2. When opening a solid door:
    a. Approach the door from the side away from the hinges.
    b. Before getting in front of the door, grasp the knob and start opening the door.
    c. If someone comes through the doorway, step back.
3. Keep doors to enclosed stairwells closed.

3.7.11 Fire Safety Policy

Conrail's office fire safety policy is as follows:

1. Each mounted portable fire extinguisher must be inspected by an employee who is qualified to perform such inspections.
    a. Inspect extinguishers visually once a month and check for defects once a year.

b. Document these inspections and checks on the tag attached to the extinguisher.

2. You are not expected to try to fight a fire or to use a portable fire extinguisher yourself.

3. Know the evacuation routes in your building, including the prime fire exit and a secondary exit in case the prime exit is blocked.

4. In case of a fire:

   a. Sound the fire alarm

   b. Notify the fire department, any floor captains, and other employees.

   c. Evacuate the building or area immediately.

   d. For your own safety, allow trained personnel to fight the fire.

      EXCEPTION: Employees may fight fires if they are adequately trained and instructed.

5. Evacuate the building as follows:

   a. Move calmly to the exits, closing doors as you go. Do not use elevators.

   b. Feel every door before opening it.
      - If it's hot, don't open it.
      - If it's cool, open it slowly and stay behind the door.
      - If heat or pressure comes through the door, slam it shut.

   c. If you can't get to safety, find a room with a window and do the following:

      - Shut the door and seal cracks.
      - If you are above the second floor, open the window to get fresh air and alert fire fighters.
      - Wait for help. **Do not jump.**

3.8 Elevator Safety

3.8.1 Getting on or off Elevator

Get on or off an elevator only after it stops. Make sure the door, gate, or barrier is completely open.

3.8.2 Using Elevators

Follow these precautions when using elevators:

1. Do not reopen elevator doors by placing any body part in the door opening.
2. Make sure the elevator is even with the adjoining floor before you enter or leave it.
3. Face the doors.
4. Do not overload the elevator.
5. Report missing elevator instructions to your supervisor.

3.8.3 Stopping Between Floors

If the elevator stops between floors, or if doors do not open:

1. Follow the posted emergency instructions.
2. Never place any part of your body in or reach through the shaft enclosure to operate elevator controls.

3.8.4 Loading Elevators

Follow these precautions when loading elevators:

1. Stop the truck, float, or mechanical equipment at least 3 feet from the elevator.
2. Move it on or off the elevator only after the elevator is stopped and even with the adjoining floor.
3. Before closing the elevator doors, make sure that the equipment and feet are clear of the safety gate.
4. Before starting the elevator, close gates or doors and see that persons and objects are clear.

3.9 Lunchroom Safety

3.9.1 Operating Microwaves

Follow these precautions when operating microwaves:

1. Do not put sealed glass containers or narrow-necked bottles in a microwave.
2. Do not use metal objects or foils.
3. Pierce whole eggs or food with non-porous skin before cooking (for example: potatoes, apples, egg yolks, sausage).
4. Do not use recycled paper products for cooking. Impurities in these products may cause fires.
5. Avoid escaping steam when opening containers.
6. In case of fire in the oven, leave the door closed, set the timer to zero, and disconnect the power.
7. Do not leave the area while food is heating.

3.9.2 Handling Hot Food

Use protection such as a hot pad, mitt, pot holder, or utensils to handle containers with hot food.

3.9.3 Using Vending Machines

Carefully read instructions on vending machines. In addition:

1. Never tilt, push, or move a vending machine to free an item. Call the vendor.
2. Do not forcefully remove items from the machine.

3.9.4 Cutting Food

When cutting food, place the food on a plate or napkin—never in your hand. Cut away from your body.

3.9.5 Housekeeping

Follow these housekeeping guidelines:

1. Push chairs in toward tables when not in use to prevent tripping hazards.
2. Clean your eating area and dispose of trash properly.
3. Make sure the coffee basket is securely in place before adding water.
4. Turn the power off all coffee makers during non-working hours to prevent fire hazards.
5. Make sure electrical appliances are properly grounded before using them.

3.10 First Aid

This section provides general guidelines and suggestions for treating injuries. It is *not* a comprehensive first aid manual.

3.10.1 First Aid Kits

Use first aid kits that comply with government regulations. All workplace locations, including vehicles, must include appropriate first aid kits.

3.10.2 Treating Injuries—General

If a person is injured, perform these steps immediately as needed to treat the injuries:

1. If the injuries are major, get medical assistance as soon as possible.
2. Control bleeding and apply a dressing (see Rule 3.10.3).
3. Restore breathing by artificial respiration (see Rule 3.10.10).
4. Do not move the injured person unless the area is unsafe.
5. Protect the injured person from excessive heat or cold.

3.10.3 Heavy Bleeding

Follow these steps to treat heavy bleeding:

1. Uncover the wound.

   NOTE: Refer to Rule 18.13 for instructions on protecting yourself from bloodborne pathogens.

2. Apply sterile or clean dressing to the wound and bind the dressing in place.
3. Apply pressure to large, spurting arteries to stop the bleeding.
   a. Place a compress on the bleeding, and tie the compress in place with a bandage.
   b. If the bleeding continues, apply compresses and pressure until the bleeding stops.
4. If a leg or arm is bleeding:
   a. Elevate the limb.
   b. If the limb is severed or severely mangled, tie a bandage around the limb between the wound and the body and twist the bandage with a stick. Every 20 minutes release the pressure for 5 minutes.

3.10.4 Minor Burns and Scalds

Follow these steps to treat minor burns and scalds (less severe than third-degree burns):

1. If possible, apply cold water compresses or submerge the burned area in cold water until the pain subsides.
2. If the burn is an electrical burn, there may be two burn areas—one where the current entered the body and one where it exited the body. Be sure to look for a second burn area.
3. If the skin is raw and blistered or dry and charred, protect it from the air.
    a. Apply a sterile gauze compress from the First Aid Kit to protect against infection.
    b. Cover the compress with cotton, gauze, a clean handkerchief, or other soft cloth and hold the cover lightly in place with a bandage.
    c. Do not apply oil or other liquid dressing.
4. If clothing is stuck to the skin, do not peel off the clothing. Cut around it.

3.10.5 Broken Bones

Follow these steps to treat a broken bone:

1. Do not move the injured person unless the area is unsafe.
2. If you suspect a neck or back injury, keep the person absolutely flat.
3. Control any bleeding.

3.10.6 Gas Poisoning

Follow these steps to treat gas poisoning:

1. Ventilate the area immediately.
2. Remove the injured person from the dangerous atmosphere.

3. Restore breathing by artificial respiration (see Rule 3.10.10).
4. Keep the person warm.

3.10.7 Drowning, Suffocation, or Loss of Consciousness

Follow these steps to treat drowning, suffocation, or loss of consciousness:

1. Restore breathing by artificial respiration (see Rule 3.10.10).
2. Keep the person warm.

> **For a drowning victim, *get air into the person's lungs immediately using artificial respiration.* Do not waste time trying to clear water from the lungs or empty the person's stomach.**

3.10.8 Electric Shock

Follow these steps to treat electric shock:

1. If the person is still in contact with the electrical wire or equipment, break the contact *if you can do so safely*. See Rule 3.10.9.

   EXCEPTION: If the person is in a vehicle and electrical wires are hanging near the vehicle, do not attempt to remove the person.

   > **Be extremely careful to avoid contacting the wire or equipment yourself.**

2. Restore breathing by artificial respiration (see Rule 3.10.10).
3. Keep the person warm.

3.10.9 Releasing Person From Contact

Follow these steps to release a person from contact with a live conductor:

1. Notify emergency personnel (Fire Department) and the Supervisor of Train Operations (STO).
2. Do not touch the live conductor.
3. Do not directly touch the person or the person's bare skin while he or she is in contact with the live conductor.
4. Keep bystanders clear.

3.10.10 Heart Attack (Cardiac Arrest)

Follow these steps to respond to a heart attack from electric shock or other cause:

1. Check for the person's pulse (at the wrist, at the carotid artery at the angle of neck and jaw, etc.).
2. Check for a heartbeat by placing your hand or ear against the person's chest.
3. If there is no pulse, heartbeat, or chest movement, take the following steps **immediately**:
    a. Call or send for an emergency medical rescue unit (police, fire department, or other).
    b. If someone is qualified or certified in CPR (cardiopulmonary resuscitation), begin CPR and continue until the emergency medical unit arrives. See Rules 3.10.10A and 3.10.10B.

Begin CPR immediately—every second counts. Do not move the person unless the area is unsafe.

A. Mouth-to-Mouth CPR

Follow these four steps to perform mouth-to-mouth CPR:

NOTE: Use personal protection (gloves, barrier protection, pocket shield).

1. Prepare the person for CPR.
   a. Lay the person on his or her back on a firm surface.
   b. Quickly clear the mouth and airway of foreign material.
2. Tilt the person's head backward.
   a. Use the head tilt chin lift procedure.
   b. Place the heel of your other hand on the person's forehead, and press down to elevate the person's chin.

   NOTE: You must position the head properly to open the airway.
3. Blow air into the person's lungs.
   a. With your hand on the person's forehead, tightly pinch the person's nostrils shut using your thumb and index finger.
   b. Take a deep breath. Place your mouth tightly around the person's mouth and give four quick breaths to establish the airway to the lungs.
   c. Wait 5 seconds and give another breath. Stop exhaling when you see the person's chest rise.

   NOTE: Adjust the volume and force of your breathing according to the response of the person's chest.
4. Listen for air leaving the lungs.
   a. Remove your mouth from the person's mouth.
   b. Turn your head toward the person's chest so that your ear is over the person's mouth.
   c. Listen for air leaving the lungs and watch the person's chest fall.

d. Continue to give one breath every 5 seconds until help arrives.

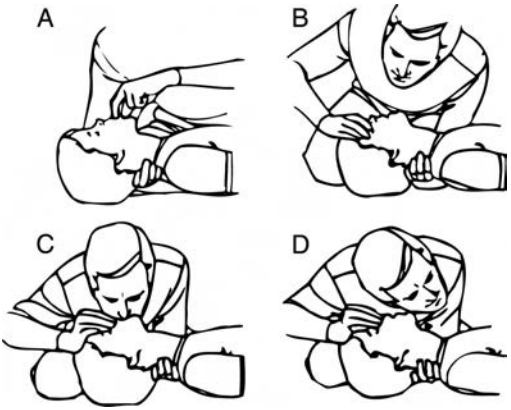


Figure 3C. Performing Artificial Respiration (CPR)

B. Mouth-to-Nose CPR

Use mouth-to-nose CPR if:

- The person's mouth is severely injured, or
- You cannot make an airtight seal against the person's mouth because of the size of the person's mouth, missing teeth, or other reason.

Follow these steps to perform mouth-to-nose CPR:

NOTE: Use personal protection (gloves, barrier protection, pocket shield).

1. Close the person's mouth with one hand. Hold the person's lips sealed with your thumb on the person's lower lip.
2. Take a deep breath. Place your mouth tightly over the person's nose and give four quick breaths to establish the airway to the lungs.

NOTE: The seal around the nose must enclose the person's nostrils completely.

3. Wait 5 seconds and give another breath. Stop exhaling when you see the person's chest rise.

NOTE: Adjust the volume and force of your breathing according to the response of the person's chest.

4. Listen for air leaving the lungs.
    a. Remove your mouth from the person's nose.
    b. Turn your head toward the person's chest so that your ear is over the person's mouth.
    c. Listen for air leaving the lungs and watch the person's chest fall.
    d. Continue to give one breath every 5 seconds until help arrives.

3.10.11 Eye Injuries

If there is an object in the person's eye, apply a covering but do not try to remove the object.

For chemical burns of the eye, immediately flush the eyes thoroughly with plain water. Follow the procedure in Rule 2.5 for responding to injuries.

3.10.12 Fainting

Place the person flat with the person's feet elevated. Loosen clothing.

3.10.13 Seizures

Follow these steps to respond to a seizure:

1. Immediately call or send for an emergency medical rescue unit (police, fire department, or other).
2. Do not hold or restrain the person.
3. Do not place anything between the person's teeth or in the person's mouth.
4. Remove any nearby objects that could cause injury.

5. Cushion the victim's head with folded clothing or a pillow.
6. Loosen tight clothing, especially at the neck.
7. If the person's mouth has fluid in it (such as saliva, blood, or vomit), roll the person to one side so the fluid can drain out.

3.10.14 Heat Exhaustion

A person with heat exhaustion has cold and clammy skin.

Move the person to a cool place. Keep the person lying down. Loosen clothing. Give the person sips of salt water (1 teaspoon salt to 8 ounces water).

3.10.15 Heat Stroke

A person with heat stroke has hot and dry skin.

Reduce the person's body temperature immediately by applying ice or sponging with cold water. Remove most clothing. Follow the procedure in Rule 2.5 for responding to injuries.

4. USING PERSONAL PROTECTIVE EQUIPMENT

4. USING PERSONAL PROTECTIVE EQUIPMENT

4.1 Introduction

When you must work with or near a workplace hazard, protect yourself by wearing personal protective equipment. Whenever you enter an area or facility, make sure you know and comply with all rules that require the use of personal protective equipment.

This chapter gives safety rules for wearing various kinds of personal protective equipment, including eye protection, safety helmets, face shields, hearing and ear protection, and protective clothing.

4.2 Responsibilities for Personal Protective Equipment

If you use personal protective equipment during your normal job duties, you are responsible for:

- Caring for and maintaining the equipment.
- Keeping the equipment in a secure place.
- Having the equipment available at all times.
- Inspecting the equipment before each use. If you find any defects, do not use the equipment. Report the defects to your immediate supervisor, who will replace the equipment.
- Wearing the equipment correctly. Do not modify personal protective equipment.
- Ensuring that non-employees obey rules governing employees where protective equipment is required.

4.3 Wearing Eye Protection

This section gives rules for eye protection requirements, exceptions, and special precautions for welding and cutting.

4.3.1 General Requirements for Eye Protection

Follow these general eye protection requirements:

1. While you are on duty, protect your vision by wearing safety eyewear that is clean, properly fitted, and equipped with factory-installed, permanent side shields.
2. While in a work area, do not remove safety eye protection unless absolutely necessary to de-fog, clean, or change. Be careful to keep interior surfaces of safety eye protection free of particles and debris.
3. If you wear corrective lenses, you must wear either company-provided prescription safety glasses or cover-all type goggles over your personal glasses.
4. Wear contact lenses in office areas only.
5. Do not wear dark lens eyewear inside of buildings.
6. You may wear goggles with colored lenses only for specific work, when they are required.
7. Refer to Figures 4A and 4B to determine the appropriate eye protection for various operations.

Safety Glasses and Goggle Applications

Operation	Hazards	Recommended Protectors
Acetylene-Burning Acetylene-Cutting Acetylene-Welding	Sparks, Harmful Rays, Molten Metal, Flying Particles	7, 8, 9
Chemical Handling	Splash, Acid Burns, Fumes	2, 10 (For severe exposure add 10 over 2)
Chipping	Flying particles	1, 3, 4, 5, 6, 7A, 8A
Electric (Arc) Welding	Sparks, Intense Rays, Molten metal	11 (11 in combination with 4, 5, 6, in tinted lenses, advisable)
Furnace Operations	Glare, Heat, Molten, Metal	7, 8, 9 (For severe exposure add 10)
Grinding-Light	Flying Particles	1, 3, 4, 5, 6, 10
Grinding-Heavy	Flying Particles	1, 3, 7A, 8A (For severe exposure add 10)
Laboratory	Chemical Splash, Glass Breakage	2 (10 when in combination with 4, 5, 6)
Machining	Flying Particles	1, 3, 4, 5, 6, 10
Molten Metals	Heat, Glare, Sparks, Splash	7, 8 (10 in combination with 4, 5, 6, in tinted lenses)
Spot Welding	Flying Particles, Sparks	1, 3, 4, 5, 6, 10

Figure 4A. Operations Requiring Safety Glasses and Goggles

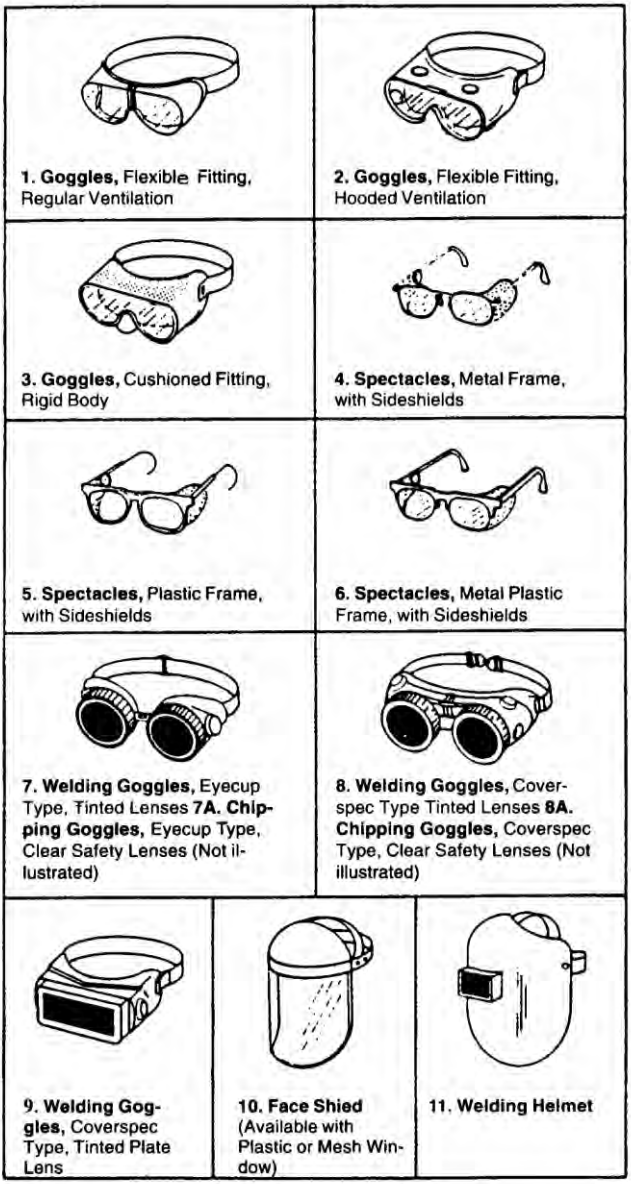


Figure 4B. Types of Safety Glasses and Goggles

4.3.2 Exceptions for Eye Protection

Eye protection is not required when you are in these locations:

- Enclosed lunch and locker rooms, reporting locations, and ready rooms
- Highway vehicles and equipment with enclosed compartments
- Enclosed offices
- En route to and from offices and personal or company vehicles in parking lots
- During recreational periods at Company facilities, unless specifically required

NOTE: If you are performing maintenance work, these exceptions do *not* apply. Maintenance work requires eye protection at all times, in all locations.

4.3.3 Special Precautions for Welding and Cutting

Follow these precautions when welding or cutting:

1. Do not perform welding, cutting, heating, or grinding operations unless you are wearing appropriate eye protection.
2. If you are performing work near electric (arc) welding or cutting operations, wear a welding helmet. If a welding helmet is not available, move a safe distance from the operation.
3. When you are welding or cutting, or watching or supervising these operations, use the proper helmet or hand-held shield equipped with the prescribed protective lenses. See Figure 4B.
4. When you are electric welding or cutting, use a screen to guard others from the harmful rays. If the location makes using a screen impractical, keep others away from the operation and advise them not to face it.

   NOTE: Using a face shield does not substitute for using primary eye protection.

4.4 Wearing Safety Helmet

Wear a safety helmet (hard hat) while on duty if your head or face could be injured. (For example, hazardous areas where people may throw rocks, etc.)

Follow these requirements:

- Do not wear safety helmets (hard hats) backwards, unless they interfere with other protective equipment.
- Place only company-approved decals on helmets.

4.4.1 Exceptions for Safety Helmets

A safety helmet is **not** required when you are in:

- Vehicles
- Lunch rooms
- Office buildings
- Fully enclosed equipment cabs

NOTE: If you are performing maintenance work, or working at the Automotive Terminals, these exceptions do *not* apply. Maintenance and Engineering work requires a safety helmet at all times, in all locations.

NOTE: Car inspectors are not required to wear a hard hat when making normal yard repairs. However, they must wear bump caps.

NOTE: Transportation employees are not required to wear a safety helmet unless their supervisor instructs.

4.5 Wearing Face Shield

Wear a face shield when you are:

- Electric (arc) welding.
- Cutting and handling brush, briars, vines, or banding that has a loose end.

- Handling or working with acids, chemicals, fuel oil, molten substance, or other skin irritants.
- Operating a power cleaning tool, leaf blower, grinder, power wood or abrasive saw, power sander, chain saw, or other machine shop power tool.
- Sand blasting, chipping, or cleaning.
- Applying temporary personal protective electrical grounds.
- Washing equipment such as locomotives using spray solvents.
- Fueling locomotives.
- Chipping or helping to chip wheel buildup.
- Performing work when there is a potential for injury

Wear a face shield when instructed by your supervisor.

NOTE: A face shield is not a substitute for eye protection. Wear a shield in conjunction with primary eye protection.

4.6 Wearing Hearing and Ear Protection

4.6.1 Hearing Protection

Wear hearing protection when you are:

- Working in any posted area designated as a “Hearing Protection Required” area.

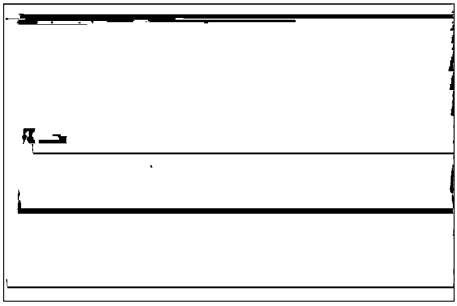


Figure 4C. “Hearing Protection Required” Sign

- Operating or working close to equipment, machinery, or power tools that are:
  - — Marked with warning labels, **or**
  - — Listed on hearing conservation posters.

Wear hearing protection when instructed by your supervisor.

4.6.2 Ear Protection

Wear ear protection when you are welding, cutting, gas cutting, or exposed to flying sparks from these operations. Sparks from welding or cutting can burn your inner ear.

4.7 Wearing Respiratory Protection

Follow these precautions for safely using respiratory protection:

1. Wear an approved respirator when you are:
   - Exposed to:
     - — Mechanically generated dusts
     - — Metal fumes and lead dusts
     - — Spray paint
     - — Sand blasting, grit blasting, or shot blasting
     - — Toxic or nauseating gases, fumes, vapors, or mist
   - Unloading ballast cars in confined areas, in tunnels, or in weather that does not allow the dust to disperse quickly.
   - Operating a ballast regulator, cribber, or power adze.
   - Instructed to wear respiratory protection by your supervisor.
2. You must be medically qualified to wear a respirator.
3. Use a respirator that has been properly fitted to your face and is designed for the specific hazard.

4. Make sure that facial hair or other material does not interfere with the face seal.

   NOTE: Use a respirator only after fully complying with Conrail's Respiratory Protection Policy, which includes medical qualification, training, and fit testing.

4.8 Wearing Protective Gloves and Clothing

Wear protective gloves—rubber, plastic coated, or otherwise protective—and protective clothing when you are:

- Handling or working on a wet cell battery.
- Handling, pouring, or using acids, chemicals, toxic substances, or solvents.
- Handling creosoted timber by hand.
- Handling objects with sharp edges.
- Opening or closing trailer, container, or freight car doors.
- Climbing on or off equipment.
- Welding or burning.
- Working with steam.
- Performing work where your hands could be injured.

  NOTE: Do not wear gloves when operating machinery or portable power tools if gloves could become caught in the moving parts.

  NOTE: Use approved electrical protective gloves when working on electrical apparatus.

4.8.1 Removing Glass

Remove glass from a frame using gloved hands and an appropriate tool. Deposit broken glass in a designated receptacle or location.

4.9 Wearing High Visibility Safety Vest / Garment

While on duty, all employees must wear company-provided high visibility vest or garment when on or about the tracks or at a highway grade crossing. High visibility vest must be worn as the top layer of clothing and not supersede the current attire safety rules.

Remote Control Operators (RCO) must wear company-provided high visibility control transmitter vest. The vest must be properly secured to the operator and Remote Control Transmitter (RCT) must be attached with 4 clips. This vest must not be worn so that the tilt feature fails to activate when in a tilt position.

EXCEPTIONS:

- High visibility vest is not required when riding in enclosed equipment or vehicles.
- When working in an enclosed Locomotive Shop.
- When working in an office setting.
- When grinding, cutting, or welding, wear flame retardant clothing. (Rule 2.6)

4.10 Wearing Shin Protectors

Wear shin protectors when you are:

- Operating bulkheads.
- Operating a single-head power adzer without a cab.
- Operating an abrasive saw.
- Operating a cribbing machine.
- Operating other equipment that could injure shins.

Wear shin protection when your supervisor requires.

4.10.1 Wearing Knee Pads

Wear knee pads when shackling and unshackling vehicles, or when your supervisor requires.

4.11 Wearing Top of Foot Protection

Wear safety shoes with metatarsal (top of foot) protection or other foot protectors when you are:

- Operating power adzers.
- Operating power concrete breakers or drills.
- Operating hand-held power spiking hammers.
- Operating power impactors.
- Operating other equipment that could injure feet.

Wear foot protection when your supervisor requires.

4.12 Wearing Acid and Other Substance Protection

When handling acid, caustic, toxic, chemical, solvent, or other irritants, follow these precautions:

1. Wear personal protective equipment as prescribed by the label on the material safety data sheet for that substance.
2. Protect all parts of your body.
3. Avoid spilling and remain clear of any spills.
4. Do not rub any part of your body while handling or exposed to any part of the irritant.
5. When required to wear an acid suit:
    a. Keep the cuff part of the protective gloves inside the sleeve of the acid suit at all times.
    b. Keep boot tops inside the acid suit pant legs.
    c. Secure all fasteners.
6. Remove all wearing apparel that has become contaminated with foreign substances before continuing your assigned work tasks.

5. WORKING WITH AND TRANSPORTING HAZARDOUS MATERIAL

5. WORKING WITH AND TRANSPORTING HAZARDOUS MATERIAL

WORKING WITH HAZARDOUS MATERIAL

5.1 Introduction

This section gives safety rules for working with hazardous material, including working with hazardous material containers, working with empty flammable material containers, storing hazardous material containers, transferring flammable liquids, working with fusees, operating an engine in a confined space, and handling skin contact hazards.

This section also gives rules for transporting hazardous materials.

5.2 Safety Precautions

Follow these precautions when working with hazardous material:

1. If you must enter an area contaminated with hazardous material after an emergency has ended, wear the appropriate protective clothing and respirator designated by your immediate supervisor.

   NOTE: Also refer to Chapter 4, Using Personal Protective Equipment.

2. If you come into contact with hazardous substances, flush the skin for 15 minutes before you eat, drink, or smoke.

3. Do not start or stimulate a fire in a stove, furnace, firebox, or in the open using grease, alcohol, solvents, flammable liquid, or a material saturated with a flammable liquid.

4. Do not store flammable gases, liquids, or solids near a pilot light, open flame, or source of ignition.

5. Clean your hands, machinery, or equipment only with the approved cleaner or solvent that is provided. Use solvent in a well-ventilated area. Do not use gasoline or other flammable liquids for cleaning.
6. If your gloves or clothing become saturated with a flammable substance:
    a. Keep a safe distance from sources of heat and open flames.
    b. Remove and clean the clothing as soon as possible.
7. Do not use water to extinguish a fire on or near electrical circuits, equipment, or apparatus.
8. Do not eat, drink, or store food in an area exposed to toxic material.
9. Do not smoke or use an open flame in the following areas:
    - Posted or otherwise restricted area
    - Confined space
    - Area with explosives, flammables, gases, chemicals, storage batteries, or other such items
10. Keep the route to a fire alarm, fire extinguisher, water hydrant, or other firefighting equipment clear of obstructions.
11. Do not use an open flame to thaw a frozen carburetor, fuel line, or radiator.
12. Do not interfere with the operation of a vent, valve, or other safety device on a container or tank of hazardous material.

NOTE: Also refer to Rule 6.7, Transporting Flammables.

5.3 Working With Containers of Hazardous Material

5.3.1 Opening Container

Follow these precautions when opening a container of gasoline or other flammable liquid that could be pressurized from exposure to heat:

1. Loosen the cap slightly.
2. Cover the cap with heavy cloth or burlap.
3. Open the container.

5.3.2 Keeping Containers Under Control While Handling

Keep barrels, cylinders, and other containers of flammable liquids or explosives under complete control while handling. If necessary, use a block, hand line, or other aid to prevent dropping or rough handling.

5.4 Working With Empty Flammable Material Containers

5.4.1 Cutting or Welding Container

Do not cut or weld a container that was used for oil, gasoline, or other flammables unless the container has been cleaned of all residue.

5.4.2 Disposing of Empty Containers

Dispose of an exhausted pressurized container according to the instructions printed on the container.

5.5 Storing Containers of Flammable Material

Store containers of flammable material and pressurized containers away from a source of heat in a well-ventilated area. Do the following:

1. Store gasoline or other flammables in approved safety cans only.
2. Store containers in proper flame-proof cabinets.
3. Use DOT-approved cans to transport gasoline and other flammables.

5.6 Transferring Flammable Liquids

5.6.1 Safety Precautions

Follow these safety precautions when transferring flammable liquids from one container to another:

1. Guard against sparks from static electricity.
2. Do not use compressed air to force flammable liquids from a container. Use only pumps approved for the task.
3. Properly ground both containers before transferring flammable liquid.

5.6.2 Filling Vehicle Fuel Tank

Follow these precautions when filling a vehicle fuel tank:

1. Turn the ignition off and make sure the engine is stopped.
2. Fill the tank using a pump or a safety can.
3. Maintain contact between the nozzle of the pump or can and the opening to the fuel tank.

   NOTE: If you cannot maintain metal contact with the container to which you are transferring the liquid, ground the container.
4. Leave a 1-inch space at the top of the tank to prevent overflowing.
5. Control the flow of the liquid and avoid spills. See Figure 5A.

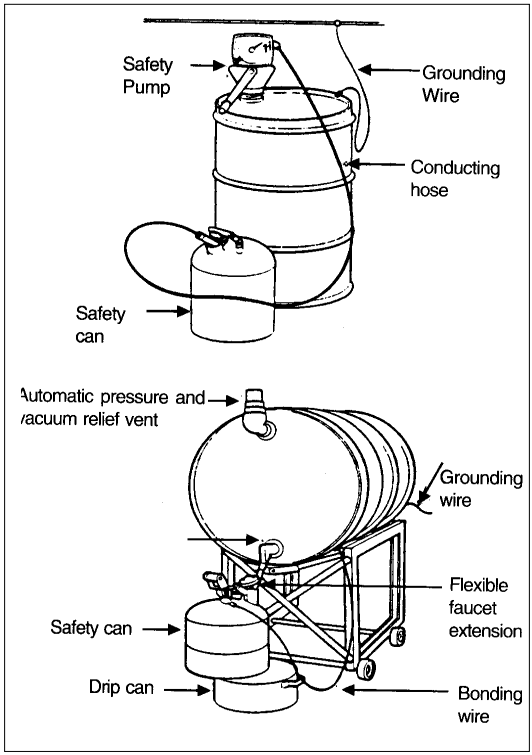


Figure 5A. Filling a Container From a Fuel Supply Tank

5.6.3 Filling Container

Follow these precautions when filling a container:

1. Fill the container out of doors, if possible. If you must fill the container indoors, open the windows before pouring and keep the windows open until the area is free of fumes.
2. Maintain contact between the nozzle, pipe, flexible hose, or other attachment and the container.

   NOTE: If you cannot maintain metal contact with the container to which you are transferring the liquid, ground the container.
3. Control the flow of the liquid and avoid spills.

5.6.4 Filling Refrigerator Car Heater Supply Tank

Follow this procedure when filling a refrigerator car heater supply tank:

1. Keep the heater upright at all times.
2. Extinguish the flame, then unfasten the heater to remove it from the bunker.
3. Place the removed heater on the ground in a well-ventilated area.
4. Remove the filling cap.

   CAUTION: Remove the filling cap only after the heater is on the ground in a well-ventilated area.

5. Immediately replace the filling cap.
6. Replace the heater and secure it in position before you light the pilot light.

5.7 Working With Fusees

Only authorized employees may use fusees, except in an emergency. Do not misuse fusees.

5.7.1 Lighting and Using Fusee

CAUTION: Do not remove caps from fusees until you are ready to use them. Do not transport them with the caps removed.

Follow this procedure to light and use a fusee:

1. Hold the end of the fusee to be lit downward and far enough away to prevent fire or sulfur from dropping onto any part of your body or clothing.
2. Expose the end of the cap and press it against the ignition powder.

3. Pull the cap toward yourself and push the fusee away.
4. Keep the lit fusee at arm's length and below shoulder level.
5. Move the lit fusee slowly.

CAUTION: Do not throw a fusee into a stove or open fire, or place a lit fusee on a wooden structure.

5.7.2 Extinguishing Fusee

Follow this procedure to extinguish a fusee:

1. Tap the lit end of the fusee over a low object until the lit portion drops off.
2. Make sure the lit portion of the fusee does not fall on weeds, grass, or other flammable material.

5.7.3 Storing Fusees

Store fusees in metal containers. Separate fusees from other objects.

5.8 Using Torch, Lantern, Cutting Torch, Furnace, Forge, Engine, or Other Such Devices

5.8.1 Operating Engine in Confined Space

Do not operate an internal combustion engine in a confined space unless you have arranged for the exhaust gases to vent outside.

5.8.2 Removing Filling Plug

Follow these precautions before removing the filling plug on a torch, lantern, furnace, gasoline engine, or other such device:

1. Shut down or extinguish the device.
2. Replace the plug immediately after filling.
3. Before lighting or starting the device, ensure the plug is in tight and does not leak.

5.8.3 Lighting Device

When you light an oil or gas forge, furnace, or heater, stand to the side of the door or opening to protect yourself in case of flashback.

5.8.4 Shutting Down Device

When you extinguish or shut down a furnace, forge, or other such piece of equipment, shut off the fuel supply before you turn off the air.

5.8.5 Using the Device in Bin or Bunker Coated With Explosive Residue

Before you use a torch, lantern, cutting torch, or other open flame inside a coal or charcoal bin, a bunker, or any closed equipment coated with residue that may contain explosive dust, spray the enclosed area with water.

1. Spray the entire area thoroughly and wait until any dust is settled before you begin work.
2. Make sure the area is well ventilated.

5.9 Cleaning Near Explosive Fumes

To clean around an engine, tank, or other place where flammable or explosive fumes may be present, use a soft cloth instead of steel wool or a steel brush.

5.10 Handling Skin Contact Hazards

5.10.1 Handling Acids, Chemicals, Solvents, and Creosote

Follow these precautions when handling skin contact hazards, such as acids, chemicals, solvents, material treated with creosote, or other skin irritants:

1. Before you handle any chemical, read the warning label on the container.

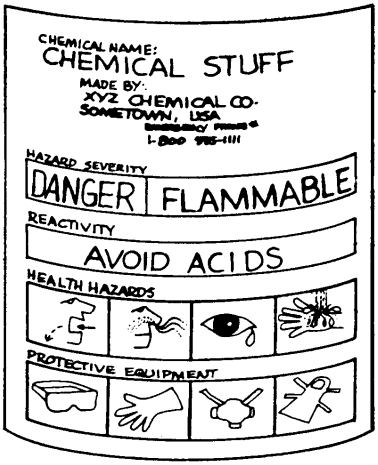


Figure 5B. Chemical Warning Label

2. Wear the proper personal protective equipment.
3. Cover any exposed skin with barrier cream.
4. Avoid spilling the chemical. Do not contact any spilled material.
5. Do not rub any part of your body while handling or being exposed to the irritant.

5.10.2 Handling Refrigerant

Follow these precautions to use refrigerant safely:

NOTE: Refrigerant for a mechanical refrigerating system is dangerous because it has a low boiling point and is practically odorless, making it difficult to detect. It will burn you if you contact it.

1. Wear primary eye protection, gloves, and a full face shield. Cover all exposed skin, such as your neck and arms. Also see Rules 4.3 and 4.8.
2. Handle or store the refrigerant in a well-ventilated area.

3. Use a leak detector torch to locate leaks as follows:
    a. Follow manufacturer's instructions.
    b. Remove the torch suction hose from the leak as soon as it is located.
    c. Do not allow the refrigerant to be sucked into the torch hose.

5.11 Disposing of Hazardous Material

Dispose of paper, rags, waste, or material saturated or coated with a flammable as directed by your immediate supervisor. Do not dispose of these items as follows:

1. Do not throw them from a window or train.
2. Do not place them in your pocket, refuse container, locker, or other confined space.
3. Do not place them near a stove, furnace, switchboard, electric wiring, radiator, or other heat source.

5.12 Using Heat to Repair Tank That Contained Flammables

Follow these precautions when using heat to repair or dismantle a tank that has contained a flammable:

1. Wash and flush the tank thoroughly.
2. Open all access vents, caps, plugs, or access plates.
3. Fill it with water, if possible. Then drain it before working.
4. Wait until the repairs are completed and the tank has cooled. Then replace filling caps, plugs, and access vents and plates.

5.13 Working With Molten Metal

Follow these precautions when using or working with molten metal to avoid dangerous flare-ups.

1. Wear welding/burning clothes, gloves, and a full face shield.
2. Do not allow any liquids to enter the metal.
3. Do not place wet or damp tools or objects near it.
4. To avoid dangerous splashes, add additional feed stock to the melting pot slowly and carefully.

5.14 Heating Rail With Rope Soaked in Fuel Oil

Follow these precautions when heating a rail with a rope soaked with fuel oil:

1. Keep the rope in a container with handles and a secure lid.
2. Use this container to carry the rope to the work location.
3. Using hand tools, such as a lining bar or ballast fork, remove the soaked coil of rope from the container and place it in position at the rail.
4. If you must handle the rope with your hands, wear protective gloves.

   CAUTION: Be extremely careful that the soaked rope does not contact your clothing.

5. Ignite the rope from the upwind side using a fusee or gasoline distributing can.

5.15 Handling Lantern Batteries

Follow these precautions when handling lantern batteries:

1. Store and transport batteries in a manner that will prevent the battery terminals from being short-circuited.
   a. If available, place insulators over battery terminals when the batteries are not in a radio or other device.
   b. If insulators are not available, protect battery terminals to prevent shorts.

c. Do not place a battery in a bag or case with another battery or with metallic objects that may short circuit the terminals.

2. Do not puncture, crush, overheat, or mutilate batteries. Protect batteries from physical impact.

3. Dispose of defective or spent batteries according to the instructions for the specific battery type.

4. Charge batteries only by the charger designed for the specific model battery. Carefully match the label on a charger to the label on the battery for compatibility before interconnecting the two. Never place other objects on the top of charging batteries.

TRANSPORTING HAZARDOUS MATERIAL

5.16 Responsibilities

If your duties are subject to federal, state, or municipal laws, you must be familiar with the following requirements for transporting hazardous material.

This section gives safety rules for obtaining a shipping paper, marking and placarding a vehicle, securing containers of hazardous material, parking a vehicle, smoking near a vehicle, fueling a vehicle, crossing tracks, and transporting flammables.

5.16.1 Obtaining Shipping Paper

A vehicle transporting any amount of hazardous material on public roads must have a shipping paper. Use pad CT 570.

5.16.2 Marking and Placarding Vehicle

If the vehicle is carrying more than 1,001 pounds of hazardous material, the vehicle must be marked and placarded.

NOTE: Refer to Eastern Code Hazardous Material Rules (HM-1).

5.17 Securing Containers of Hazardous Material

When transporting hazardous material in containers that are not permanently attached to the vehicle, secure the containers with rope, chains, or other approved restraining devices.

5.18 Parking Vehicle

Do not park a vehicle containing hazardous materials within 300 feet of an open fire.

5.19 Smoking Near Vehicle

When transporting explosives, oxidizing materials, or flammable materials, make sure that no person smokes or carries a lighted cigarette, cigar, or pipe on or within 25 feet of the vehicle.

5.20 Fueling Vehicle

Turn off the engine of a vehicle containing hazardous materials before you fuel the vehicle.

5.21 Crossing Tracks

If you are driving a placarded vehicle, follow these precautions before you cross tracks:

1. Stop vehicle between 15 and 50 feet from the tracks.
2. Listen and look in each direction for approaching trains.
3. If a train is approaching, make sure you can cross the tracks at least 15 seconds before the train arrives.

5.22 Transporting Flammables

Follow these precautions when transporting flammables:

1. Do not transport gasoline or other flammables in the trunk of an automobile or other vehicle unless:

- The situation is an emergency, **and**
- The flammables are transported in Department of Transportation–approved safety gas cans.

2. Do not transport cylinders of explosive gases (such as oxygen, acetylene, or propane) in a bus or truck compartment occupied by the driver or passengers.

3. Do not transport cylinders or explosive gases (such a oxygen, acetylene, or propane) without cylinder caps applied.

6. OPERATING VEHICLES

6. OPERATING VEHICLES

6.1 Introduction

This chapter gives responsibilities for drivers and passengers, as well as safety rules for protecting parked vehicles, transporting flammables, driving in bad weather, and following emergency procedures.

6.2 Safety Precautions

Follow these precautions when riding in or driving a vehicle:

1. Use seat belts whenever they are provided.
    a. As soon as you enter the vehicle, adjust the seat. Sit straight up with your back against the seat. Adjust the seat belt so that is comfortable, yet tight enough that you will not be thrown forward during a collision, lurch, or sudden stop.
    b. Keep your seat belt secured until the vehicle has stopped or until you prepare to leave the vehicle.
2. Keep the driver or operator's cab free of clutter. Ensure that objects on the floor do not interfere with operating the foot pedals.
3. When you are stopped on a highway, enter and exit the vehicle on the side away from traffic, if possible.
4. Do not drive company-owned or company-leased vehicles unless you are authorized to do so.
5. Do not use privately owned vehicles on duty unless you are authorized to do so. Two-wheeled and three-wheeled cycles cannot be authorized for use on duty.

6.3 Driver's Responsibilities

If you drive a vehicle you are required to:

1. Obey the motor vehicle laws and be properly licensed. Except in unusual circumstances, you must pay any fines, penalties, or charges assessed against you for failing to comply with laws or regulations.
2. Operate the vehicle in your charge safely and properly. Secure items being transported.
3. Ensure the safety of your passengers and the cleanliness of your vehicle.
4. Do not move until your passengers have fastened their seat belts properly.
5. When you approach railroad tracks, slow down and ensure that you can cross the tracks safely. Do not rely on the crossing gate or signal.

   NOTE: When driving a fuel truck, stop at all crossings. Determine if it is safe to cross, and then do so. Do not shift gears while crossing.
6. Do not transport passengers in the body, bed, or cargo area of the vehicle.
7. Do not transport passengers in the riding compartment of a truck unless the passengers:

   - Can communicate with the driver in the cab.
   - Are seated.
   - Use their seat belts.

NOTE: Refer to Rule 6.2 for other precautions.

6.3.1 Backing Up

Follow these precautions when backing up a vehicle:

1. Make sure no obstructions are behind the vehicle to prevent safe movement.
2. If your view to the rear is obstructed, designate another person to stand near the rear of the vehicle and guide you as you back up.
3. If the vehicle is not equipped with a backup warning device, sound the horn once.
4. Back up only the necessary distance.

6.3.2 Using Cellular Phones

Follow all applicable state and local laws regarding cell phone use while operating motor vehicles. Some states and municipalities prohibit or severely limit cell phone use while driving vehicles. However, at a minimum, follow this rule regarding cell phone use while driving on Company business.

- **Initiating Phone Calls:** Before a driver may initiate any conversation by cell phone that is not equipped with speed dialing, the driver must stop the vehicle in an area where it is not a hazard to others or at risk of being in an accident. After initiating the call, the driver may proceed in motion if the cell phone is equipped with hands-free equipment.
- **Receiving Phone Calls:** A driver may receive incoming calls while in motion if the cell phone is equipped with hands-free equipment.

Follow these other safety precautions:

- Do not take notes while driving.
- Turn cell phones OFF while refueling the vehicle and while in blast zones.
- Keep phone conversations in the vehicle short. If an extended conversation is necessary, advise the other party that you will call them back after you have safely stopped the vehicle.

6.3.3 Passenger's Responsibilities

If you ride in a vehicle, you are required to:

1. Ride in the provided cab.
2. Remain seated.
3. Not crowd the driver's seat.
4. Wear your seat belt.

NOTE: Refer to Rule 6.2 for other precautions.

6.4 Protecting Parked Vehicles From Moving

If a vehicle is stopped and the operator is not at the controls, follow these precautions to protect the vehicle from moving:

1. Stop the engine and remove the ignition key.
2. Engage the gears. If the vehicle has an automatic transmission, put the transmission in PARK.
3. Set the parking brake.
4. Lock the cab when the vehicle is not attended.
5. If the vehicle is stopped on a slope, chock the wheels.

6.5 Using Conveyor

Do not overload a car, truck, conveyor, or other transporting equipment or load it in an unsafe manner.

6.6 Securing Work Attachments

Follow these precautions to secure work attachments on specialized vehicles, such as boom/bucket trucks, log loaders, or three-way dumps:

1. Store the work attachments properly before you move the vehicle. Store work attachments neatly in the bed of the vehicle or the storage space.
2. Comply with any local or state clearance restrictions for the height or length of the load.

6.7 Transporting Flammables

Follow these precautions when transporting flammables:

1. Do not transport gasoline or other flammables in the trunk of an automobile or other vehicle unless:
   - The situation is an emergency, **and**
   - The flammables are transported in Department of Transportation–approved safety gas cans.
2. Do not transport cylinders of compressed gases (such as oxygen, acetylene, or propane) in a bus or truck compartment occupied by the driver or passengers, or without the protective caps applied.

6.8 Driving in Bad Weather

Follow these precautions when driving in bad weather:

1. Keep your windshield and windows free of ice, snow, and frost. Make sure the wipers and defroster are in good condition.
2. Be aware of the condition of the road. Test your brakes occasionally.
3. Drive at a safe speed. Slow down on a wet, snowy, or icy road.
4. Follow other vehicles at a safe distance. Allow more than the normal stopping distance.

5. When slowing or stopping, keep your foot on the brake pedal and apply steady pressure if the vehicle has operative ABS brakes.
6. When driving with wet brakes, step lightly on the brake as you drive. The heat from friction will dry out the brakes.
7. Use headlight low beams only. If using wipers, you must keep the headlights on.

6.9 Driving at Night

Follow these precautions when driving at night:

1. Slow down due to reduced visibility.
2. Do not overdrive your headlights. Make sure you can stop within the distance lighted by the headlights.
3. Use parking lights only when the vehicle is parked.
4. When stopped on a major thoroughfare, use four-way flashers.

6.10 Using Chains

Follow these precautions when using chains or anti-skid devices:

1. For single traction wheels, apply chains or other such devices to both wheels.
2. For dual traction wheels, apply chains or other such devices to the outside wheels only.

6.11 Driving on Steep Hills

Follow these precautions when driving on a steep hill:

1. Before you drive down the hill, slow down and put the vehicle in a low gear.
2. As you drive down the hill, keep a steady, light pressure on the brake to keep your speed from increasing.

6.12 Responding to Emergencies

This section gives emergency procedures for stopping in case of a breakdown, jump-starting a vehicle, jacking up a vehicle, and adding air to a tire.

6.12.1 Stopping in Case of Breakdown

Follow these procedures if you must stop because of a breakdown:

1. Exit the vehicle on the side away from traffic, if possible. Always look before exiting the vehicle.
2. Move the vehicle off the traveled part of the road.
3. Turn on the vehicle's four-way emergency flashers.
4. Set out flagging protection.

6.12.2 Jump-starting Vehicle

Follow this procedure to jump-start a vehicle:

1. Do not smoke.
2. Wear eye protection. Be aware that improperly jump-starting a battery can cause chemical burns or an explosion.
3. Turn the ignition switches of both vehicles to the OFF position, set the parking brakes, and put both vehicles in NEUTRAL or PARK.
4. Do not stand behind or in front of the disabled vehicle. Make sure that all other persons are clear of both vehicles.
5. Remove all acid filler caps unless they are vented.
    a. Cover openings with rags before attaching cables to prevent battery explosion.
    b. Dispose of rags after the unit starts.
6. Make sure both electrical systems are the same voltage and polarity.
7. Make sure the electrolyte is at the proper level. Do not jump-start if the battery fluid is frozen.

8. Attach the jumper cables as follows:

   a. Attach the end of one jumper cable to the positive terminal (+) of the "dead" battery. Ensure that the positive terminal is wired to the starter or solenoid.

   b. Attach the other end of the cable to the positive terminal (+) of the "good" battery.

   c. Attach the end of the second jumper cable to the negative terminal (–) of the "good" battery. Do not allow these cable clamps to touch any metal other than the battery terminals.

   d. Attach the other end of the second jumper cable to the engine block of the disabled vehicle. Do not attach the cable to the negative terminal of the "dead battery" or to the carburetor, fuel line, tubing, or moving parts. See Figure 6A.

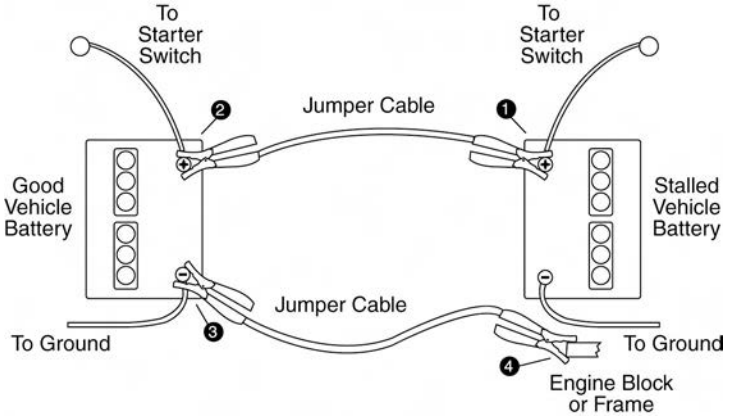


Figure 6A. Attaching Jumper Cables

9. Start the vehicle with the good battery, then start the disabled vehicle. Do not lean over the battery while the ignition switch is being turned on.

10. After the disabled vehicle is running, remove the jumper cables in the reverse order, starting with the cable clamp attached to the engine block.

6.12.3 Jacking Vehicle

Follow these precautions when jacking a vehicle:

1. Block the wheels to prevent the vehicle from moving.
2. Do not occupy a vehicle supported by a jack.
3. Do not place yourself under a vehicle supported by a jack unless blocks also support the vehicle (see Rule 11.14 Using Jack).

6.12.4 Fixing Flat Tire

Add air to a tire only if you are qualified to do so. Do not add air to a multi-piece (split) rim tire.

6.12.5 Checking Steaming Radiator

Follow these requirements before you loosen or remove the cap from a steaming radiator:

1. Make sure the radiator is cool enough to prevent steam or hot liquid from gushing out.
2. Before touching the cap:
    a. Cover it with a heavy cloth, glove, or burlap, **or**
    b. If the cap is designed so that such protection is not needed, loosen only to the extent necessary.

7. HANDLING MATERIAL

7. HANDLING MATERIAL

7.1 Introduction

This chapter gives safety rules for handling material, including lifting material, handling long objects, unloading material from moving equipment, and placing material in storage.

7.2 Safety Precautions

Follow these precautions when handling material:

1. Wear gloves. Take precautions to protect your hands, feet, and body.
2. Keep your hands and feet in positions where heavy objects cannot fall onto them or shift against them.
3. Avoid sharp edges and projections.
4. Avoid dislodging loose material or objects nearby that could strike you.
5. Keep clear of holes, slippery surfaces, and obstructions to prevent slipping and falling.
6. Do not drop or throw material if it could rebound.
7. Leave material in a stable and secure position after handling.
8. Do not follow closely behind a long object being carried.
9. Do not place tools, material, or other objects above ground level where they can be knocked off.
10. Leave equipment, tools, materials, scraps, and other items clear of pathways where they will not fall or be knocked down. If the items are in danger of falling down, secure them adequately.

NOTE: Also refer to Rule 14.4, Determining Safe Weights For Lifting.

7.3 Lifting Material

Follow these precautions when lifting material:

1. Clear the path of obstructions and tripping hazards.
2. Check the object for grease, oil, and sharp edges. Grip the object firmly at the most suitable point with the palms of your hands.
3. Test the weight of the load by tipping it slightly. If the weight is beyond the limit of your physical capability, do not lift the load.
   - Get other employees to help you lift the load,
   - Haul the material in several trips, **or**
   - Use a mechanical device when practical.
4. Position yourself to lift the object.
   a. Place your feet about shoulder width apart with one foot alongside the object and one foot behind it.
   b. Bend your knees and keep your back straight.

      NOTE: Tucking in your chin will help keep your back straight.

   c. Draw the object close, keeping your arms and elbows close to your body.
5. Lift the object slowly using your leg muscles, not your back.
6. As you lift the object, maintain a firm footing. Avoid sudden movements. If you need to turn, turn your whole body. Do not twist your back.
7. If you completely lose control of the object, immediately move clear until it comes to rest.

7.3.1 Lifting Material Above Your Waist

Follow these precautions when lifting material above your waist:

1. Do not lift the object with one motion. Lift the load waist high, following the precautions in Rule 7.3.
2. Rest the object on a support and change your grip.
3. Bend your knees and use your leg muscles to lift the material above your waist.

7.4 Handling Material With Two or More Persons

Follow these precautions when two or more persons are handling material:

1. Designate one person to give all commands.

   NOTE: The designated person must tell the others what will be done and what command words will be used. The designated person must give the commands loudly and clearly.

2. Lift or move the material only when instructed by the designated person.
3. Place persons along the load according to their size, strength, and experience.
4. If you feel that you are losing your hand hold or the object is slipping, notify the person giving the commands and slowly lower the object.

7.5 Handling Long Object

Follow these precautions when handling a long object (such as a pole, pile, or timber):

1. If you are pushing or rolling a long object, position yourself behind or at the end of the object.
2. If you are carrying a long object alone, make sure that you can maneuver around persons and obstructions.
3. Use two people to carry a long object, (such as pipes, lumber, etc.) one on each end, under the following conditions:
    - You need to go in or out of a doorway.
    - You need to go around a corner.
    - You are carrying the object in a congested area.
    - You are not certain you can carry the object alone without endangering others.
4. If you are carrying a long object with other persons, position yourselves on the same side of the object and walk in step.

7.6 Leaning Material Against Another Object

Lay material flat whenever possible. If you must lean a flat object (such as a door, portable platform, or sheet metal) against another object, follow these precautions:

1. Lean the object at an angle steep enough to prevent the object from tipping over.
2. If necessary, block the bottom of the object to prevent it from sliding.

7.7 Removing Glass From Frame

Follow these precautions when removing glass from a frame:

1. Wear gloves.
2. Dispose of the glass in a designated trash receptacle.

7.8 Removing Protruding Objects From Material

7.8.1 Lumber and Other Material

Follow these precautions when handling lumber or other material:

1. If the material will be reclaimed, promptly remove all protruding objects, such as nails, screws, hooks, and loose bands.
2. If the material will not be reclaimed, bend flat all protruding objects.
3. If the material will be repaired and replaced, do not remove nails or screws, but place the material so the points are facing downward.

7.8.2 Boxes and Other Containers

Follow these precautions when handling boxes or other containers:

1. As you open the container, remove all protruding objects, such as nails, staples, wires, and loose bands, from the container and its cover.

   NOTE: Complete this step before you handle the material, remove it, or place anything into the container.

2. Fold and flatten loose hoops and bands and put them with the scrap.

7.9 Placing Material in Storage

Follow these precautions when placing material in racks, bins, or other designated storage areas:

1. Place the material on a proper foundation. Place material on blocking when necessary.
2. Do not exceed the weight or volume capacity of the storage area.

3. Do not throw material into a storage area. Place material in a stable, orderly position.
4. Keep piles of material as low as practical. Keep the top of a stack at least 36 inches below sprinkler heads.
5. Stabilize a stack by stepping, interlocking, or securing the ends. Securely block or wedge material that could shift or fall.
6. Keep spacing strips within the limits of the stack.
7. If material becomes dislodged or out of control, immediately move clear until it comes to rest.

7.9.1 Placing Material in Piles

Follow these precautions when placing material in piles or removing it from piles.

1. Place the pile on a proper foundation.
2. Do not throw items onto the pile. Place material in a safe, orderly manner. Be careful not to dislodge other objects in the pile.
3. Do not make high, narrow piles.
4. Stabilize the pile as follows:
    a. Step or lap it when practical.
    b. Secure ends of short material in a pile by stepping, crossing, or interlocking the material.
    c. Securely block round or other material that is likely to shift or fall.
5. Do not allow spacing strip to extend beyond the edge of a pile.
6. Where possible, keep the top of the pile at least 36 inches below sprinkler heads.

7. To remove material from a pile:
    a. Observe the arrangement of the pile.
    b. Where possible, remove the material from the top instead of the side of the pile to avoid disrupting other items.
    c. Leave the pile in a stable position.

7.10 Handling Ties, Timber, and Rail

Follow these precautions when manually handling ties, timber, or rail:

1. Use the proper tongs.
2. Position the tongs as follows:
    - Below the center line of the object
    - At the balance point along the length of the object (middle of object)
    - At least 8 inches from the end of the object
3. Before lifting, make sure the tongs have a secure grip on the object.

7.11 Handling Metal Track Spike Containers

Follow these precautions when handling metal track spike containers:

1. Use tongs, when practical.
2. Keep clear of metal projections and sharp edges when you handle or reach into the container.

7.12 Unloading Material From Moving Equipment

Follow these precautions when unloading material from moving equipment:

1. Do not unload material from a train or self-propelled equipment unless the equipment is:
   - Standing, **or**
   - Moving less than 5 MPH.
2. Talk to the person in charge of the equipment to make sure the equipment will not suddenly change speed.
3. Make sure that all persons on the ground who are not unloading material are clear of the equipment.
4. If you are using a continuous unloading procedure, station an employee at a suitable point to warn persons who might enter the area.

7.13 Moving Material on Wheels or Rollers

Follow these precautions when moving material on wheels or rollers:

1. Make sure the path has adequate clearance.
2. Keep the load stable and in the rear if possible.
3. Keep your feet and hands clear of the wheels or rollers.
4. Use a sledgehammer to shift rollers.

7.14 Using Skids, Transfer Plates, and Gang Planks

Follow these precautions when using skids, transfer plates, or gang planks:

1. Use equipment that is strong enough for the intended purpose.
2. Secure the equipment in place properly. Secure it to a stationary object if possible.

3. Do not walk on or between skids.
4. Plan your movement so that your hands or feet won't get caught between material you are handling and another object.

7.15 Moving Material in Hand Trucks, Wagons, or Carts

Follow these precautions when moving material in hand trucks, wagons, trailers, or carts:

1. Push, do not pull four-wheeled hand trucks or carts not equipped with tongues or drawbars.
2. Face the direction of movement.
3. Watch out for persons and objects and always be prepared to stop.
4. Be careful at corners, doors, and passageways.

7.16 Moving Wheel Sets

Follow these precautions when moving wheel sets:

1. If you must stop a wheel set, do not stand in front of it. Stop it from behind by grabbing the axle.
2. Do not walk in front of moving mounted or unmounted wheels.
3. If an unmounted wheel being rolled gets out of control, immediately get clear and warn others until the wheel comes to rest.
4. Secure mounted or unmounted wheels before leaving them.

7.17 Loading or Hauling Material on Trucks, Trailers, or Wagons

Follow these precautions when loading or hauling material on trucks, trailers, or wagons:

1. Never overload.

2. Inspect the equipment for defects.
3. Begin by loading the center, then load toward the sides or ends. When unloading, remove the center of the load last.
4. Make sure that the load is secure.
5. Block all round material.
6. If material extends beyond the equipment, place a red flag on the end of the material.

8. OPERATING SWITCHES

8. OPERATING SWITCHES

8.1 Introduction

Manually operated switches give train crews the ability to change tracks themselves without relying on someone else to operate the switch.

This chapter gives safety rules for operating switches with low or high switch stands.

8.2 Safety Precautions

Follow these precautions when operating a switch:

1. Keep your hands and other parts of your body clear of pinch points.
2. Use slow, smooth movements. Avoid jerking and twisting.
3. Make all movements with firm footing, a secure hand hold, and a braced position.
4. If a switch is defective, or if you cannot follow the procedures below for any reason, operate the switch only if you can take precautions to operate the switch safely.
5. Report a defective switch to your immediate supervisor.

8.3 Operating Low Switch Stand

Most Conrail switches have a low switch stand with a lever that moves from side to side. To operate a low switch stand without a keeper, follow the procedure in Rule 8.3.1. To operate a low switch stand with a keeper, follow the procedure in Rule 8.3.2.

8.3.1 Operating Low Switch Stand Without Keeper

Follow this procedure to operate a low switch stand without a keeper, or a derail with a straight or weighted switch lever:

1. Make sure equipment is not moving near the switch.
2. Make sure the switch stand, connecting rods, and the space between the switch point and the stock rail are free of obstructions.
3. Make sure all persons nearby are clear of the switch stand and switch point.
4. Position yourself to operate the lever as follows:
    a. Face the switch stand with your shoulders parallel to the switch lever.
    b. Stand as close as possible to the lever, with the switch ball (the end of the lever) directly in front of you.
    c. Place your feet shoulder width apart, reach down, and grasp the switch ball with both hands.
    d. Maintain good posture for lifting. As you prepare to lift the lever, look up.
5. Lift the lever and move it to the other side of the switch stand as follows:
    a. Keeping your body close to the lever, lift the lever slowly and smoothly. Bend your knees and hold your back straight. Do not use short, jerky movements.
    b. Keeping the switch ball directly in front of you, move the lever to the other side of the switch stand. Reposition your feet sideways as you move the lever. Keep your feet shoulder width apart.
    c. Do not twist or bend your torso. Do not allow your hands to move past the left or right side of your body; keep your hands between your shoulders.

6. Push the lever down as follows:
   a. Position your upper body over the lever.
   b. Push the lever down. Let your body weight help you push.
7. Inspect the switch point, and make sure it fits securely against the stock rail.
   - If it does not fit securely, do not allow equipment to move over the switch. Inform your immediate supervisor.
8. If the switch is equipped with a derail, make sure the derail is in the proper position.
   a. If equipment will move on the track equipped with the derail, make sure the derail is in the DOWN position.
   b. If the track is being secured from movement, make sure the derail is in the UP position.
   c. Make sure the derail is locked.

8.3.2 Operating Low Switch Stand With Keeper

Some low switch stands are equipped with a keeper on each side that locks the lever down and keeps it from moving. The keeper consists of the keeper latch, which holds the lever down, and the keeper release lever, which operates the keeper latch.

You must release the keeper latch before you can move the switch lever. Be aware that tension can build up in the switch and can make the lever recoil or spring up when you release the keeper latch.

Follow this procedure to operate a low switch stand with a keeper:

1. Follow steps 1 through 3 in Rule 8.3.1 above.
2. Stand clear of the path the lever will take if it recoils.
3. Using the foot closest to the switch stand, push down on the keeper release lever to release the keeper latch.
4. Wait until the lever stops moving.
5. Follow steps 4 through 6 in Rule 8.3.1 above.

NOTE: If the lever has not moved past the keeper latch, keep one foot on the keeper release lever while you lift the lever past the keeper latch. Then reposition both feet on the ground and continue to move the lever.

6. As you push the lever down, make sure the keeper latch engages the lever.
7. Follow steps 7 and 8 in Rule 8.3.1 above.

8.4 Operating High Switch Stand

A few Conrail switches have a high switch stand. The lever on a high switch stand resembles the rotating bar on a turnstile.

To operate a high switch stand:

- Lift the lever out of the retaining notch into a horizontal position.
- Pull the lever to the other side of the switch stand, and push the lever down into the other notch.

Be aware that tension can build up in the switch and can make the lever recoil when you lift it out of the retaining notch.

Follow this procedure to operate a high switch stand:

1. Make sure equipment is not moving near the switch.
2. Make sure the switch stand, connecting rods, and the space between the switch point and the stock rail are free of obstructions.
3. Make sure all persons nearby are clear of the switch stand and switch point.
4. Position yourself to operate the switch as follows:
    a. Position yourself with the switch stand to one side of your body. Do not face the switch stand.
    b. Stand clear of the path the lever will take if it recoils around the switch stand. Stand behind the possible path of the lever and one arm length away from the lever.
5. Lift the lever out of the retaining notch as follows:

a. Place your hand under the lever with your palm up. Slowly lift the lever out of the retaining notch into a horizontal position.

b. Wait for the lever to stop moving.

6. Pull the lever to the other side of the switch stand as follows:

   a. Step around to the other side of the lever.

   b. Grasp the lever with both hands. Keep your hands toward the end of the lever to maximize your leverage.

   c. Assume a braced position by stepping back with one foot to support your weight. If necessary, place your forward foot against the headblock or tie to increase your leverage.

   d. Use slow, smooth movements to pull the lever to the other side of the switch stand. Do not use short, jerky movements. Reposition your feet as you move the lever.

   e. Lean back as you pull the lever. Let your body weight help you pull.

7. Push the lever into the retaining notch as follows:

   a. Use a combination of pushing and pulling motions to work the lever down into the retaining notch.

   b. Position your upper body over the lever and let your body weight help you push. Do not push lever with your foot.

8. Inspect the switch point and make sure it fits securely against the stock rail.

   - If it does not fit securely, do not allow equipment to move over the switch. Inform your immediate supervisor.

9. If the switch is equipped with a derail, make sure the derail is in the proper position.

   a. If equipment will move on the track equipped with the derail, make sure the derail is in the DOWN position.

   b. If the track is being secured from movement, make sure the derail is in the UP position.

   c. Make sure the derail is locked.

8.5 Operating Bow Handle Switch

Follow these procedures when operating the switch lever, or bow handles, on switches so equipped:

NOTE: Certain New Century and Racor switches are equipped with bow handles. The procedure for handling both types is the same.

1. Stand close to the lever or bow handle and use both hands.
2. Use smooth, controlled movements. Do not jerk on the switch lever or bow handle.
3. Face the switch with one foot on each side of the switch tie closest to the switch lever.
4. To move the lever to the center position:
    a. Bend your knees and use your legs with your back in the proper position.
    b. For bow handle switches, place feet shoulder width apart, bend your knees slightly (if needed), and use your legs.
5. To complete the lining of the switch:
    a. Shift your feet in the direction of the switch lever movement to straddle the opposite tie.
    b. Use your legs and body weight.
    c. Apply final pressure by pushing down with one foot on the switch lever when operating a low switch stand.
    d. For bow handle switches, shift your feet in the direction of the bow handle movement.
        - Use smooth, controlled movements.
        - Do not jerk on the bow handle.
        - Do not twist or bend your torso.
        - Keep your hands between your body.
        - Do not allow your hands to move past the left or right side of your body.

9. WORKING ON AND AROUND EQUIPMENT

9. WORKING ON AND AROUND EQUIPMENT

9.1 Introduction

This chapter gives safety rules for working on and around equipment, including walking and climbing on equipment, riding on equipment, parking equipment, unloading ballast, opening and closing doors, releasing brakes, coupling and uncoupling equipment, working around locomotives, and operating self-propelled equipment.

9.2 Safety Precautions

Follow these precautions when working on or around equipment:

1. Do not operate or ride on locomotives, cars, push trucks, or any equipment unless it is necessary to perform your duties or you are authorized to do so.
2. Do not jump from equipment, platforms, or other elevated places. Use steps or a ladder instead. If you must descend without steps or a ladder, see Rule 9.3(6).
3. Do not lean against a train, self-propelled equipment, machinery, vehicle, or other wheeled equipment that is standing.
4. Do not drop cars (flying switches).
5. Do not place clothing, tools, or other objects where they will foul ladder rungs, running boards, steps, end sills, or safety appliances.
6. Place ice, clothing, supplies, or other items on equipment only when it is stopped. Place items on the equipment or hand them to someone else before getting on or off equipment.
7. Always look closely at the load on a car and at lading that may shift toward the side or end of the car. Keep your hands, feet, and other body parts clear of the top of the car and of this lading.

8. Before operating a valve or making adjustments or repairs on the outside of equipment, make sure the equipment is stopped and properly secured. Follow lockout/tagout procedures.
9. Keep ladders, scaffolds, skids, trucks, trailers, and other material a safe distance from a track or the edge of a platform, unless your immediate supervisor provides protection.
10. When operating or working on a dump car, keep all parts of your body clear of moving equipment parts.
11. Always look for bad order tags or Shop Tickets. Read them and avoid the defects they point out.

9.2.1 Working Near or Observing Equipment

When working near or observing equipment:

1. Communicate with the equipment operator and make sure everyone understands the following:
   - Normal equipment operating procedures
   - Location of employees working around or observing equipment
   - Operator's blind spots
   - Signals warning that the equipment will move
2. When your duties require you to be around the equipment, keep outside the 25-foot safe area around the equipment.

   EXCEPTION: If your duties require you to be within the 25-foot safe area around the equipment, perform those duties from the location established when you communicated with the operator.

9.3 Getting on and off Equipment

Follow these precautions when getting on or off equipment:

1. Get on or off wheeled equipment only when it is stopped. Use the side away from “live” track or main track when practical. Also, avoid low clearances and other potential hazards.

   EXCEPTION: You may get on or off moving equipment in emergencies only.

2. Never get on or off moving flat cars.
3. Be off of equipment during coupling if possible.
4. Before getting on or off a standing passenger car at a platform, do the following:
   a. At a low platform, make sure the side and trap doors are secured in the OPEN position.
   b. At a high platform, make sure the side door is secured in the OPEN position and the trap door is secured in the CLOSED position.
5. When getting on or off equipment, use only the handhold, ladder, step, stirrup, or other part designed for getting on or off equipment.
6. When getting off standing equipment with or without a ladder:
   a. Observe the ground for unsafe conditions.
   b. Avoid holes, slippery spots, and obstructions.
   c. Keep a hand hold on a suitable object until your feet are firmly placed and supporting your weight.
   d. Face the equipment unless you are at a platform location of a passenger rail car.
   e. Keep your body close to the equipment.

f. Place the heel of your shoe against the outside edge of the rung or stirrup, if possible, or use the ball of your foot turned slightly sideways.

g. Slowly lower yourself so that both feet touch the ground at the same time.

7. Do not hold anything in your hands when getting on or off equipment.

   EXCEPTION: Trainmen are allowed to carry a lantern. However, the lantern must rest on the back of the hand with the bale on the palm between the thumb and forefinger.

9.4 Going Under, Between, or Foul of Equipment

Follow these precautions before you go under, between, or in the foul of trains, self-propelled equipment, machinery, vehicles, other wheeled equipment, material racks, or other low facilities:

1. Never cross over between or make adjustments to moving equipment.

2. To cross over between standing equipment:

   a. Receive protection as outlined in step 3 below.
   b. Only cross over between equipment with a crossover platform and continuous platform.

      NOTE: If equipment does not have the necessary safety appliances to cross over, separate the equipment at least 50 feet or walk around the end of the equipment.

3. Before fouling, going between or under standing equipment for inspection, adjustment, repairs, or any other purpose:

   a. Make arrangements for proper protection—such as three-step protection (Rule 9.4.1) or blue flag protection (Rule 10.8)—with the person controlling the movement of the equipment or track. Make sure he or she understands what you plan to do.

NOTE: Only the person fouling or going between or under the equipment can originate and terminate the arrangements.

b. Have a thorough understanding with other employees involved so that no signals to move will be given.

c. Make sure protection has been provided against any approaching equipment on the same track.

d. Make sure the slack is adjusted.

e. If the locomotive is attached or on the same track, get three-step protection from the Engineer as described in Rule 9.4.1 below.

f. Make sure the equipment is separated by at least 50 feet before making any adjustments, except when complying with Rule 9.21.3.

g. Know that the equipment will not move.

4. Once proper protection is provided, observe the following procedures when fouling, going between, or going under standing equipment:

a. Check the available clearance and move so that you will not hit any object.

b. Use available steps, ladders, and handholds.

c. Never use your foot to make an adjustment.

d. Keep your foot clear of the knuckle, cutting lever, and the space between the coupler shank and the end of the car.

e. When crossing over equipment, do not hold anything that can interfere with gripping the handrail.

f. Do not stand in front of a cushioned underframe coupler. Stand to the side.

g. When going under a car, keep all parts of your body at least 4 feet from wheels when crossing the rail.

h. Cancel protection only after you are in the clear. Re-establish protection before fouling equipment again.

9.4.1 Three-Step Protection

Before fouling, going between, or going under standing equipment and a locomotive is attached or on the same track, get three-step protection from the Engineer verbally.

- To communicate the request for protection and to grant protection, ensure both positive identification and acknowledgment of each individual requesting protection.
- When using the radio, use occupation, job symbol, and engine number when requesting and granting permission.

When protection is requested, the Engineer must take three actions, also called three-step protection:

NOTE: If the engineer is providing protection for other employees and must leave the locomotive before the other employees have relinquished the protection, the Engineer must contact the employees and require that they get in the clear of equipment.

1. Fully apply the independent brake and make a 20-psi brake pipe reduction.

   NOTE: This reduction may be modified or eliminated under the following circumstance:

   a. When an employee(s) must foul equipment to determine air pressure to perform air brake inspections and emergency air brake repairs that require the train brakes to be released, the 20-psi brake pipe reduction is not required. Employees must allow slack to adjust before fouling equipment.

2. Place the reverser lever in the neutral position.
3. Open the generator field switch.
4. The Engineer must maintain this protection until notified by the employee who requested it that the protection is no longer required.

9.5 Unloading Ballast

When unloading ballast, stop the train and request three-step protection (Rule 9.4.1) when you are:

- Inserting a tie under a car.
- Removing a tie from under a car.
- Attaching a come-along to a car.
- Attaching a chain to hopper doors.
- Fouling ballast cars for any reason.

9.6 Walking on, Standing on, and Climbing up or Down Equipment

Follow these precautions when walking or standing and climbing on equipment:

1. When climbing up or down equipment:
    a. Use side ladders instead of end ladders.
    b. Face equipment.
    c. Position your heel against the outside edge of the rung or stirrup if possible. Otherwise, use the ball of your foot turned slightly sideways and pointed in the direction of movement.
    d. If you do not have enough side clearance, do not climb up or down equipment.
    e. To reach or leave the brake platform, cross between the side ladder and the end ladder on the rungs nearest the level of the brake platform.

2. Use available steps, ladders, and handholds when you are crossing over trains, self-propelled equipment, or other equipment.
3. Use ladders when you are coming out of, from, or to any elevated part of a train, self-propelled, or other equipment, machinery, or vehicle. Keep your body facing it.
4. Get down from the equipment on one track to reach the equipment on the adjacent track. **Do not climb or jump from one piece of equipment to another**.
5. Use available walks and keep your feet clear of the knuckle, the cutting lever, and the space between the coupler shank and the end of the car.
6. When working on the end or side of a hopper, gondola, or car not equipped with running boards, use an approved scaffold, plank, or trestle. Do not walk, stand, or sit on the top of the side or end. Never use this end to cross over between equipment.

9.7 Riding on Equipment

Follow these precautions when riding on equipment:

1. Be seated and sit in an authorized seat, if possible. Keep a handhold on a suitable object.
2. Wear a seat belt, if one is available. Unbuckle it only if required to move about.
3. If you cannot be seated, maintain a secure handhold and firm footing.
4. Do not ride with hands or feet on more than one piece of equipment at a time.
5. Before riding using stirrups, ladders, or handholds covered with ice or other slippery substances, confirm a secure handhold and foot position.

6. Face the direction of the movement. Keep your body as close as possible to the equipment. Do not allow your foot, hand, or any part of your body to project beyond the side of the equipment.
7. Expect a sudden stop or movement at any time.
8. Ride the caboose platform only if you are designated to do so.
9. Move about only as needed to perform your duties.

NOTE: Be particularly careful when the movement includes switching or a change in speed.

10. Do not use any of the following as a footrest:

    - Pipes
    - Valves
    - Instrument panel
    - Glass surfaces or other similar parts of the equipment

11. When riding on equipment, do not ride, stand, or sit in the following places:

    - Steps
    - End sill, sides, or ends of a locomotive
    - Locomotive step wells
    - Side walkway of a locomotive moving at more than 30 mph
    - Office car trap door or step unless secured
    - End of moving equipment

    EXCEPTION: You may ride the brake platform and use the brake to stop the equipment.

    - Equipment in a close clearance area
    - Running boards or footboards
    - Two-axle test weight cars
    - Coupler

    NOTE: NEVER put your foot on knuckles, in the space between the coupler head and the end of the car, or at any other potential pinch point.

- RoadRailer equipment

  NOTE: RoadRailers do not have safety appliances such as handbrakes, uncoupling levers, sill steps, end platforms, ladders or handholds, side handholds, or horizontal end platform handholds. Only employees trained on this equipment may couple, uncouple, or apply and remove markers.

- Between units, cars, or equipment
- Top of side or end of open top car
- Flat car, if other equipment is available

  NOTE: If you must ride on a flat car, do not ride on the edge or side of the flat car, unless it has a handhold above the level of the deck that will allow as close to normal body position as possible while riding.

- Handrails, uncoupling levers, or brake wheels
- Any part of containers or trailers on intermodal equipment
- Roof or load of car, unless arranged for and authorized as a working platform

NOTE: Do not use end transfer plates, stanchions, or other movable devices for handholds or footrests. Secure these devices when required.

9.8 Parking Equipment

Follow these precautions when parking on-track, self-propelled, or other equipment:

1. Stop the engine or motor and remove the ignition key.
2. Engage the clutch or gears.
3. Set the brakes to hold.
4. Chain one wheel to the rail and lock it with a private lock.
   a. If several pieces of equipment are coupled together, chain the wheel of a piece of equipment at the end of the track.
   b. If the wheel is solid, run the chain around the head end of the frame or other sturdy part of the equipment.

5. Lock and spike the switch that controls entry to the track.

   NOTE: If the track may be used for other purposes, apply a derail at least 150 feet from the equipment.

6. If you are not on company property, lock the vehicle.

9.9 Preparing to Move Train

Follow these precautions before you signal a train or locomotive crew to move the train:

1. Warn all persons on the ground of the movement.
2. Warn employees in or about the equipment of the movement.
3. Make sure that all persons on the ground are clear.
4. Make sure employees who remain in the car maintain a handhold.

9.10 Working in Drop-end Gondola Car

Follow these precautions when working in a drop-end gondola car:

1. Make sure that the lower end gate is stable. Stay clear of an unstable gate.
2. If an end gate is raised, make sure that it is secured on both sides of the car. Stay clear of the swing of the end gate. Do not climb over it.
3. Do not use a latch or jamb as a handhold.
4. Never ride or hold on to any portion of a raised or lowered gate.
5. If you must open the end gate, stand outside and take hold of the grab iron before you unlatch the end gate and push it down.
6. To close the end gate, use any device designed and approved to close it.
7. Keep clear of all pinch points.

OPENING AND CLOSING DOORS

This section gives safety procedures for opening and closing trailer/container doors, hopper car doors, opening ballast car doors, and opening sliding doors.

9.11 Opening and Closing Trailer/Container Doors

Follow this procedure when opening or closing a trailer/container door:

1. Wear gloves to avoid cuts from sharp or rough metal surfaces.

   NOTE: In winter months, skin can stick to cold metal surfaces.

2. Always assume that door handles are under pressure or tension.
3. Before opening the door, try to determine if it is under pressure from a shifted load.
   a. If the door is **not** under pressure from a shifted load:
      - Maintain firm footing and a secure handhold.
      - With your palms toward the trailer, exert enough pressure on the door handles that may be under tension to prevent the handles from striking your body.
      - Open the door slowly. If lading shifts against the door, leave yourself an escape route so that lading does not fall on you or others.

   b. If the load is shifted or the door is otherwise under pressure, do not try to open the door. Contact the Mechanical Department.
4. Open the right door first, then the left door if necessary. Do not try to open both doors at once.
5. If the door cannot be opened or closed easily, contact the Mechanical Department for assistance.

6. When examining grounded trailers/containers:
   - If clearance is close, use extreme caution.
   - If there is risk of being trapped between a trailer/container and another stationary object, park your vehicle in front of the trailer/container so that a tractor cannot hook up to the trailer.
   - When checking trailers/containers that are placed back-to-back, be aware that any trailer/container could move at any time.

9.12 Opening and Closing Hopper Car Door

Follow these precautions when opening or closing a hopper car drop bottom door:

1. When opening a hopper car drop bottom door:
   a. Make sure that no person is on top of the load or under the car. Make sure everyone is clear of the door on the opposite side of the car.
   b. Use a ratchet wrench or self-adjusting car wrench.

      EXCEPTION: This does not apply to a Car Inspector closing the door on any empty car in the Classification Yard.

      NOTE: Do not use the wrench to hold the door winding mechanism while releasing the pawl from the ratchet.

   c. Knock or pry the pawl from the operating mechanism. If necessary, unwind it with the ratchet or self-adjusting wrench. **Never** release the pawl with your fingers.
2. When closing a hopper car drop bottom door:
   a. Make sure that anyone on the other side of the car is clear of the door.
   b. Do not use your hand to remove material from the door opening. Instead, use a tool such as a bar or hammer.
   c. Keep your hands or fingers clear of the jamb or door frame.

d. Obtain the proper protection —such as three-step protection (Rule 9.4.1) or blue flag protection (Rule 10.8)— before you foul the track.

e. Secure the latch. See Rule 9.12.1 below.

9.12.1 Securing Drop Latch

Follow this procedure to secure a drop latch:

1. Pry a bar against the bottom of the door and push the door to the first notch.

   - If you cannot use a bar as a pry, grasp the side angle to stabilize yourself and push the door to the first notch using your foot.

2. Securely place the pry bar in the loop provided.

3. Pull steadily on the bar until the door latches in the second notch or closed position.

9.13 Opening Ballast Car Door

When opening a ballast car door, knock or pry the pawl from the operating mechanism using a bar no longer than 5 feet.

9.14 Opening Sliding Door

Follow these precautions when opening a box or baggage car, plug-type, or other sliding door:

1. Visually inspect the door to determine if any missing or defective parts might prevent the door from operating safely. Make sure that the door is properly tracked.

   - If the door must be repaired, it is not properly tracked.

   - If the door is not properly tracked, do not open it. Have it properly retracked first.

   NOTE: Inspect plug doors with bottom rollers off-track to ensure that the top rollers and safety arms are properly engaged on the track without damage.

a. If it is unsafe to attempt a field repair on a door, bad order it to a facility properly equipped for repairing it.

b. Before moving a car with a door that is inoperative or off-track, immobilize that door by blocking or other acceptable means.

2. To open the door, maintain a braced position with firm footing. Keep your body and hands clear of the jamb, travel rail, door opening, and other pinch points.

3. Push on the handhold provided. Do not pull.

4. If the door does not move easily, do one of the following:

   - Pull on the door using a rope with a hook or other device, such as a chain hoist, **or**
   - If the door is equipped with a push block for bumping, bump the door with equipment.

   NOTE: Do not use a come-along unless you can make a straight pull without binding the door or loading the hooks by using a length of chain.

5. Keep clear of the door opening.

9.15 Working With Journal Boxes

When working with journal boxes, follow these precautions:

1. When journal boxes are jacked up, keep your hands and fingers out of them. Use tongs or a packing hook to adjust the brass or wedge.

2. Open a journal box lid with the tool provided.

3. Close a journal box with your foot as follows:

   a. Have secure footing and a firm handhold on an angle iron, underside of a car, or side sill.

   b. Close the journal box with a firm and steady push.

NOTE: Never place your hands or fingers in journal boxes.

OPERATING HAND BRAKES

This section gives safety rules for operating hand brakes, including applying and releasing a vertical geared brake, shaft-and-wheel type hand brake, and lever (pump handle) hand brake.

9.16 Safety Precautions

Before operating any hand brake follow this procedure:

1. Determine the type of brake and know its operation.
2. Inspect the brake for defects. If you find a defect:
    a. Report it to your supervisor.
    b. Never use a defective hand brake.
3. If you will use the hand brake to stop equipment:
    a. Test it first and ensure that it is operating properly before uncoupling or beginning movement.
    b. Place feet firmly and have a firm hand hold.
    c. Once the equipment is cut off and moving, take up enough slack to allow the equipment to run, but keep the brake tight enough to stop the equipment when necessary.
4. After using the hand brake, verify that it has either applied or released.
5. Be on the brake platform to operate hand brakes if the car is equipped with a usable brake platform.
6. After operating hand brakes and before moving from the end of the car to the side of it, **always** look around the end of the car in both directions. Look out for passing equipment or lading.

9.17 Operating Vertical Geared Brake

Follow these precautions when operating a vertical geared brake.

9.17.1 Applying Vertical Geared Brake

Apply a vertical geared brake as follows:

1. Be in the proper position:
    a. Face the brake platform and place your right heel against the edge of the brake platform.
    b. Place your left heel against the end ladder rung closest to the level and below the brake platform.
    c. With your left hand, grip the handhold that provides you with the best balance. Use your right hand to apply or release the brake.
2. To apply the brake:
    a. Grip the rim of the wheel on the pull side of a spoke.
    b. Never put your hand in the spokes.
    c. Turn the wheel clockwise to apply the brake.
    d. Use the ON/OFF lever if equipped.

9.17.2 Releasing Vertical Geared Brake

Release a vertical geared brake as follows:

1. Put the lever (if equipped) in the OFF position and keep your clothing, hands, arms, and other parts of your body clear of the wheel.

    CAUTION: The wheel may spin when released. Always keep your hands and fingers clear of the wheel spokes.

2. Some brakes will require these additional steps:
    a. Take hold of the outside rim of the wheel with one hand while leaning your body slightly to the side of your other hand.

        NOTE: Maintain your balance at all times while releasing the hand brake.

    b. Turn the wheel until the pawl releases.

c. Let go of the wheel and keep your hands, arms, and other parts of your body clear of the wheel.

3. If the hand brakes were applied after the air brakes were applied in emergency, you may need to re-apply the air brakes in emergency to release the brake.

   NOTE: The above step is not necessary on brakes equipped with a separate release lever.

9.18 Operating Horizontal Shaft-and-Wheel Hand Brake

Follow these precautions when applying or releasing a horizontal shaft-and-wheel hand brake:

1. Grip the brake wheel firmly with both hands and spread your feet for balance. Maintain your balance by moving the wheel no more than a quarter turn at a time.

   a. Turn the wheel clockwise to apply the brake.

   b. Turn the wheel counterclockwise to release the brake.

2. To use a brake club to apply or release the brakes:

   a. Make sure the car is equipped with a handrail at least waist high.

   b. Grasp the handrail securely with one hand and use the other hand to wedge the brake club securely through the brake wheel against the shaft.

   c. Move the wheel no more than a quarter turn at a time.

3. If the hand brake has an exposed pawl and ratchet:

   a. Apply or release the pawl only a few notches at a time without forcing it from the ratchet.

   b. If you cannot release the pawl without forcing it from the ratchet, get help to release the brake.

      NOTE: Be prepared to re-engage the pawl instantly to prevent the wheel from spinning. Keep your clothing and body clear of the spinning brake wheel.

4. If the hand brakes were applied after the air brakes were applied in emergency, you may need to re-apply the air brakes in emergency to release the brake.

9.19 Operating Lever (Pump Handle) Hand Brake

Follow these precautions when applying or releasing a lever (pump handle) hand brake:

1. Make sure the handle stop is not defective or missing. If it is, do not use it. Call for a car repairman.
2. Place the pawl lever or weight in the appropriate ON/OFF position before pushing on the handle.

   NOTE: Some brakes require that you put the ON/OFF lever to OFF and then move the brake handle up to release the tension and down to release the brake.
3. Operate the brake from the equipment or from the ground as follows:
   a. To operate the brake from the equipment, use the brake platform and a handhold. Operate the pump handle with one hand only; keep other hand on handhold for balance.
   b. To operate the brake from the ground, stand clear of the swinging radius of the handle. Operate the handle with one hand only; keep other hand on handhold for balance.
4. When releasing the brake, keep your handhold on the handle until the brake releases. If the brake does not release:
   a. Leave the handle in the down position.
   b. Place the pawl lever or weight ON.
   c. Notify your immediate supervisor.

9.20 Blocking Standing or Moving Equipment

Follow these precautions when blocking equipment:

1. Use approved wheel chocks to secure standing equipment when available.
2. Carefully apply and remove wheel chocks to avoid pinch points.
3. Do not place wheel chocks under the wheels of moving equipment.
4. If you must block moving equipment, use only a chock block with a handle. Keep your hand clear.

   CAUTION: Keep all body parts clear of the equipment being blocked.

UNCOUPLING/COUPLING EQUIPMENT

This section gives instructions for uncoupling or coupling equipment, including uncoupling standing equipment, disconnecting yard air, coupling/uncoupling air hoses, and applying or removing markers.

9.21 Uncoupling Equipment

To open a knuckle on standing equipment, use the following procedure:

1. Stand in the clear at the side of the equipment.
2. Check for a knuckle pin in the knuckle. If the pin is missing:
   - Be extra careful as you open the knuckle.
   - Be aware that when the knuckle falls to the ground, it may bounce.
   - Report missing pins to the appropriate transportation supervisor.

   NOTE: Do not use your finger to adjust the lock pin or lift the assembly at the bottom of a coupler. Use the proper tools for the task.
3. Stand in a braced position and face the end of the standing equipment.

4. With one hand, grip the extreme end of the cutting lever at arm's length. Maintain a secure handhold with the other hand if possible.
5. Slowly lift the cutting lever handle a short distance until the anti-creep slack is taken up (you will hear a click).
6. Quickly and without jerking, continue to lift the cutting lever handle until the knuckle is open. Exert only enough pressure so that you can maintain a secure handhold and firm footing.
7. When cutting cars off in motion on a hump or flat shifting, face the direction of movement and make sure the movement speed does not exceed a fast walking pace (4 mph).

9.21.1 Handling Knuckles That Do Not Open

Most knuckles will open when you use the procedure in Rule 9.20. However, if the knuckle does not open, use the following procedure on standing equipment.

1. Separate equipment by at least 50 feet.
2. Expect movement from the compressed draft gear, the unadjusted sliding center sill, or the cushioned underframe. Wait for the slack to adjust.
3. Make arrangements for proper protection— such as three-step protection (Rule 9.4.1) or blue flag protection (Rule 10.8)—before fouling the equipment.
    a. Place only one foot in the gauge of the track.
    b. Operate the cutting lever with one hand, and grasp the center of the knuckle to pull it open.
    c. Avoid pinch points and burrs.

9.21.2 Uncoupling Equipment With Air Hoses Coupled

When uncoupling equipment with air hoses coupled, turn your head away to avoid flying particles caused by air hoses parting.

9.21.3 Adjusting Misaligned Couplers

Adjust misaligned couplers manually. If the coupler will not move easily, use a coupler strap.

NOTE: Notify the Mechanical Department when coupler straps are not available or coupler damage will not allow their use.

1. Adjust misaligned couplers manually as follows:
    a. Separate the equipment at least 50 feet and make arrangements for proper protection—such as three-step protection (Rule 9.4.1) or blue flag protection (Rule 10.8)—before fouling equipment.
    b. Face the car and place one foot in the gauge of the track on the side of the car with the skewed coupler.
    c. In a braced position, hold the grab iron with one hand, and push the coupler back toward the center with the other hand.
2. Adjust misaligned couplers using a coupler strap as follows:
    a. Separate the equipment at least 50 feet and receive three-step protection as outlined in Rule 9.4.1.
    b. Inspect the coupler strap; discard it when red core yarns appear.
    c. Place the strap around the first knuckle as follows:
        1) Apply a handbrake(s) to secure the stationary car(s).
        2) Place one end of the strap around the knuckle of the stationary car, draping the other end of the strap on the coupler.
        3) Move out of the gauge of track and signal the Engineer to close the gap, stopping within 3 feet of a coupling.
    d. Place the strap around the second knuckle as follows:
        1) After slack stops, receive three-step protection as outlined in Rule 9.4.1.

2) Place one foot in the gauge of track and position the strap around the second knuckle. Ensure the label on the strap is on top and facing upward.

3) Clear the track.

e. Have the coupler aligned as follows:

1) Signal the Engineer to move away slowly to remove the slack from the strap and align the couplers.

2) Stop movement immediately after the couplers align to avoid strap damage.

f. Remove the strap as follows:

1) Signal the Engineer to give slack for removing the strap.

2) After slack action stops, receive three-step protection as outlined in Rule 9.4.1 before fouling the equipment.

3) Place one foot in the gauge of the track and carefully remove the strap from both knuckles avoiding pinch points.

g. Step out of the gauge and complete the coupling. Release the handbrakes applied on the standing car(s).

h. Fold the strap and return it to the designated storage area.

NOTE: Where applicable, receive protection that complies with NORAC Operating Rules before fouling equipment.

9.22 Disconnecting Yard Air Supply

To disconnect a yard air supply line from the train:

1. Obtain permission from the yardmaster before fouling.
2. Close the angle cock on the equipment.
3. Close the supply air cock.
4. If the system is not self bleeding, bleed the air from the yard air supply line using the bleeder valve.

5. Uncouple the air hoses and place the yard air supply line carefully to prevent a tripping hazard.

   NOTE: Do not uncouple air hoses before bleeding. Report to the yardmaster if there are no bleeding devices.

9.23 Uncoupling/Coupling Air Hoses, Steam Connections, and Applying/Removing Markers

Before fouling equipment to uncouple or couple air hoses or steam connections, reduce brake pipe pressure with an angle cock, or apply or remove markers:

1. Make arrangements for proper protection—such as three-step protection (Rule 9.4.1) or blue flag protection (Rule 10.8).
2. Cancel protection only after you are in the clear.
3. Re-establish protection before re-fouling equipment.

9.23.1 Uncoupling Air Hoses by Hand

When necessary to uncouple air hoses by hand, use the following procedure:

1. Enter the gauge and close both angle cocks. Immediately move one foot out of the gauge and straddle the rail.
2. Bend your knees, keeping your back straight. Securely grip each hose near the glad hands.

   NOTE: Do not grasp the glad hands.

3. Slowly raise the hose joint until air pressure depletes; continue raising the joint until it separates.

   NOTE: Turn your head away as the air exhausts to avoid flying particles.

4. Return the hoses to the lowermost position instead of allowing them to drop.

9.23.2 Coupling Air Hoses

When coupling air hoses, use the following procedure:

1. Close the angle cock if the hoses are under pressure.
2. Place one foot in the gauge of the track.
3. Bend your knees, keeping your back straight, and examine the hose gaskets. Replace missing or defective hose gaskets.
4. Securely grip one hose above the glad hand. Bend it upward and hold it with one hand.
5. Grasp the other hose above the glad hand and bend it to match the glad hands.
6. Firmly move both hoses downward to the lowermost position.
7. If you must open the angle cocks, place both feet in the gauge only long enough to open the opposite angle cock. Step completely out of the gauge as soon as possible.

9.23.3 Reducing Brake Pipe Pressure With Angle Cock

Before reducing brake pipe pressure with an angle cock:

1. Separate the equipment at least 50 feet.
2. Face the end of the equipment, stand firmly, and place only one foot in the gauge of the track.
3. With one hand, grasp the hose firmly at the coupling to prevent it from flying around. Hold onto a handhold with your other hand.
4. Release the handhold and turn your head away from the angle cock to avoid flying particles. Open the angle cock smoothly with your free hand.

9.23.4 Uncoupling Steam Connection

Before uncoupling a steam connection, take these precautions:

1. Close the valve on both sides of the joint.

NOTE: If the equipment steam line does not have a valve, close the valve on the nearest end of the nearest adjacent equipment with a valve.

2. Relieve pressure as follows:
   a. Bleed the gravity trap if there is one.
   b. If not, tap the underside of the joint.
3. Keep your hands and other parts of your body clear of the joint while uncoupling.
4. Place the connection in the carrying chain.

9.23.5 Applying or Removing Markers

To apply or remove markers:

1. Carefully apply or remove markers, avoiding pinch points. Place only one foot in the gauge whenever possible.
2. Before uncoupling hoses, **always** close the angle cock and deplete air pressure in the marker hose.
3. Carefully position disconnected air hoses and chains to avoid injury.
4. Bend your knees and keep your back straight when you are picking up or setting down markers. When carrying markers, keep them close to your body.

9.24 Controlling Remotely Controlled Switches

When requested to provide protection, the employee in charge of remotely controlled switches providing access to the track on which the equipment is located must do the following:

1. Line the switches against movement to the track and apply blocking devices.
2. Do not remove the blocking devices until informed by the employee in charge of workmen that the work is complete.

3. Immediately make a written record on the appropriate form of the application and removal of blocking device protection.
4. Retain this record for 15 days after the date of removal.

WORKING AROUND LOCOMOTIVES

This section gives instructions for working in, on, and around locomotives; including starting, checking, working on, or servicing various locomotive components.

9.25 Safety Precautions

Follow these safety precautions when working around locomotives:

1. When equipment is passing on an adjacent track, move away from the side of the locomotive next to that track if possible.
2. When working in electrified territory, do not come close to an overhead catenary or third rail unless specifically authorized.
3. When checking engine components, keep your body and clothing clear of hot or moving parts.
4. Protect your fingers with cloth or paper towels when wiping oil from a dipstick or a bayonet-type gauge stick. Use extra protection when the oil is hot.
5. Do not place unnecessary items on locomotive cab heaters or other hot locomotive components. Use only heat-producing elements on locomotives that are provided by the company.
6. Keep the engine grille platform secured in the raised position at all times.
7. Do not tighten or loosen a steam pipe or fitting while the steam generator is operating or under pressure.
8. Keep your fingers and other parts of your body clear of the discharge end of nozzles, injector pumps, and high-pressure lines.
9. Before you operate belt or pulley machinery, make sure the belt guard or other guarding device is secured in its protective position.

10. Before starting to remove an air box or crankcase cover, stop the engine and lock out all starting devices.
11. After operating a valve on a locomotive for inspection and/or testing, immediately restore it to the NORMAL position.
12. Notify all employees in the immediate area and be sure they are in the clear before operating any of the following apparatuses:
    - Air brake
    - Air compressor
    - Separator blowdown
    - Fan or shutter
    - Other similar apparatus
    - Test nipple connected to an end connector or piped through a roof, and from which you are discharging steam
13. Until sure that the tension of draft gear or cushion unit is released, keep clear of the front and back of the gear or unit. Warn others to keep clear of any moving part.

9.26 Working in Locomotives

When working in locomotives, take these precautions:

1. Check doorway overhead clearance to prevent striking your head.
2. Make sure the safety bar or chains are secured on both ends of all units. Make sure doors are secured in the OPEN or CLOSED position.
3. Inspect locomotive seats to ensure they are secure and free from defects.
    - Make sure seat frames, pedestal tubes, and floor or wall-mounted bases are free of cracks.
    - Make sure the seat is mounted to the pedestal tube with a tack welded retaining bolt.

      NOTE: Never use a defective seat or one missing the seat retaining bolt.

4. Inspect side sliding windows to ensure they are in their tracks, operate properly, and that the tracks are secured to the cab wall.
5. Report safety defects on the locomotive inspection report in addition to operating defects.

9.27 Working With Locomotive Electrical Apparatus

Follow these precautions when working on locomotive electrical apparatus.

1. Keep doors or covers of electrical apparatus or cabinets closed and secured when you are not working on them.
2. When you are near or within an electrical cabinet, apparatus, or equipment, use only an approved device or tool. Use a non-metallic flashlight.
3. Renew a locomotive headlight lamp only when the locomotive is standing and the headlight control switch is OFF.
4. Open locomotive high voltage cabinets or work on high voltage wiring or systems only if you are a qualified employee performing a specific task. Always keep high voltage cabinets closed when not in use.

   NOTE: Transportation Department employees must not work on locomotive high voltage wiring or systems and can only open a locomotive high voltage cabinet to do the following:

   - **Reset circuit breakers**
   - **Open or close knife switches**
   - **Change fuses**

5. If you must open a high voltage cabinet, take the following precautions:

   a. Put the throttle in the IDLE position.

   b. Put the reverse handle in NEUTRAL.

   c. Turn the generator field switch OFF.

6. To operate a battery-knife open-type switch:
    a. Grip the handle with your weaker hand while standing at arm's length.
    b. Turn face away from the switch and quickly operate it.
7. Before you remove or renew a fuse, make sure the switch to that circuit has been opened.

9.28 Starting Diesel Engine

Before starting a diesel engine, do the following:

1. Make sure crankcase and air box covers are secure and in place.
2. Close the cylinder test valves.
3. Make sure the controls, valves, cocks, and other devices are in the proper position.
4. Make sure persons are clear of moving parts, accessories, cylinder test valves and pinch points.

9.29 Operating Locomotive After Service or Maintenance

Before operating a locomotive on which work has been performed, thoroughly inspect it. Make sure that all tools, material, and other items are away from the following:

- Electrical apparatus
- Moving parts
- Overhead areas
- Walkway and steps
- Other areas where the items might create a hazard

9.30 Securing Locomotive in Terminal

If you leave a locomotive in a terminal, report it to the supervisor and properly secure it while it is unattended. A locomotive is properly secured when:

- Air brakes are set-up.
- Hand brake is applied.
- Generator fields are set to OFF.
- Isolation switch is set to ISOLATE or START.
- Reverse lever is removed.

9.31 Working on Locomotives

Follow these instructions when maintaining, servicing, or otherwise working on locomotives.

9.31.1 Checking Underneath Locomotive

Before checking traction motors or an apparatus under a standing locomotive while the engine or engines are running, do the following:

1. Apply the air and hand brakes.
2. Open the generator field switch.
3. Put the isolation switch in START.
4. Remove the reverse lever.
5. Install your blue light or blue flag (see Rule 10.8).

9.31.2 Working on Brake Rigging

Before working on locomotive/car brake rigging, adjusting piston travel, or changing a brake shoe, do the following:

EXCEPTION: Do not follow these steps on cars if the air has been depleted.

1. Set the hand brakes, if practical, or use other means to keep the locomotive from moving.
2. Close the angle cocks on both ends of the equipment.
3. Cut out the air brakes.
4. Bleed the reservoirs.

NOTE: If the locomotive is equipped with a three-way cutout drain cock, close the cock on the brake cylinder and proceed to step 1. You do not need to cut out the air brakes or bleed the reservoirs.

9.31.3 Leaving Operative Locomotive Unattended

Before leaving an operative locomotive unattended, follow these precautions:

1. Put the throttle in IDLE or OFF.
2. Apply the air and hand brakes.
3. Remove the reverse lever, if design permits.
4. On diesel locomotives, open the generator field switch.
5. Move the isolation switch to the isolated position.
6. Take any other precautions required by the rules or by local supervision.

9.31.4 Moving Locomotive in Enginehouse Territory

Before moving a locomotive in enginehouse territory:

1. Determine that brakes are cut in at trucks. Test the brakes to make sure they are effective.
2. Sound the bell and horn or whistle.
3. Make sure people and other obstructions are clear of the move.

NOTE: When moving a locomotive in enginehouse territory, display a white light or dimmed headlight on both ends of the locomotive.

9.31.5 Using Turntables or Transfer Plates

Before moving a locomotive or car on or off a turntable or transfer plate, do the following:

1. Receive a signal from the authorized employee.
2. Make sure the tracks are properly aligned and that they are secured, if equipped, with a securing device.

9.31.6 Placing Car or Locomotive Body on Truck

When placing a car or locomotive body on a truck, use long handled tongs or other approved device to guide the center pin. Do not use your hand.

9.31.7 Rotating Engine for Testing

Before rotating a diesel engine for testing:

1. Place the fuel pump switch OFF.
2. Hold the layshaft in the NO FUEL position.
3. Open all cylinder test valves.

9.31.8 Servicing Locomotives

When fueling, watering, sanding, or otherwise servicing a locomotive, follow this procedure:

1. Put the throttle in IDLE or OFF.
2. Put the reverse lever in neutral or remove it.
3. Open the generator field switch and isolate the controlling locomotive.
4. Apply the brakes.
5. Be positioned where you are clear of servicing facilities and associated locomotive parts during the entire servicing process.
6. When removing or replacing a servicing facility or opening or closing lids or fastenings, keep hands, feet, and other body parts clear of pinch points.
7. When servicing is complete, make sure all servicing devices are removed from the locomotive. Secure them clear of the track.
8. Close and secure all locomotive servicing lids or fastenings.
9. When you are in electrified territory, comply with electrical operating instructions of the appropriate railroad or agency.
10. Observe blue flag rules (see Rule 10.8).
11. Wear the appropriate personal protective equipment:

a. When fueling and sanding and dust accumulates in the area, wear a full-face shield, primary eye protection, and PVC gloves.

b. When watering, wear a full-face shield, primary eye protection, and rubber gloves.

9.31.9 Resetting Crankcase Overpressure Device

Only qualified employees or engineers may reset a crankcase overpressure device one time to return the engine to line. If after restarting, the device shuts the engine down again, it may be reset a second time and the locomotive must remain isolated to its destination.

9.32 Operating Locomotives

While operating a locomotive or other self-propelled equipment, follow these precautions:

1. Keep a constant lookout in the direction you are moving.
2. If you are approaching a point where your view may be obstructed, or where someone may be working, sound a warning with the bell, horn, or other approved device.
3. Stop short of any person or obstruction.
4. Never go faster than posted speed limits.

9.33 Handling Abnormal Engine Conditions

Follow these instructions if a diesel engine overheats or develops an unusual noise or other abnormal condition.

9.33.1 Overheated Engine

If you think an engine may be overheating, do the following:

1. In an emergency, immediately shut off the engine from the engineman's control panel. Otherwise, isolate the engine at the control panel.
2. Allow the engine to cool to normal temperature.

NOTE: Avoid hot engine parts including the radiators and waterfill pipe.

3. Stop the engine and allow it to cool an additional 5 minutes.
4. Remove the cylinder head cover at the end of each bank of cylinders.
5. Allow 30 minutes for the vapor in the crankcase to escape from the upper deck through the oil drain pipes.
6. If you see no sign of smoke from the top deck, remove a crankcase cover from the other side and the opposite end of the engine.
7. Allow 10 minutes for ventilation before taking steps to repair the problem.

NOTE: Only qualified engineers may remove the water fill cap after pressure has been released.

9.33.2 Unusual Noise or Other Abnormal Condition

When a diesel engine develops an unusual noise, smoke, flame, or other abnormal condition, do the following:

1. Immediately shut down the engine, preferably from a remote position.
2. If the condition develops in an apparatus that will not adversely affect the operation of the diesel engine or cause damage (such as a traction motor, generator, etc.), isolate the locomotive using the isolation switch.

OPERATING SELF-PROPELLED EQUIPMENT

This section gives instructions for operating self-propelled equipment, coupling or parking the equipment, and operating and protecting certain pieces of equipment.

9.34 Safety Precautions

Follow these precautions when working on or around self-propelled equipment:

1. All persons operating and riding on self-propelled equipment must understand the duties that each person will perform.
2. Use the handrail when getting on, riding on, and getting off equipment.
3. Do not get on or off moving equipment.

9.34.1 Riding on Equipment

Follow these precautions when riding on self-propelled equipment:

1. Do not ride on material, tools, or other items loaded on a car, vehicle, trailer, or equipment.
2. Do not ride on equipment, including rolling stock, vehicles, or trailers, with your feet hanging over the side or end, unless your duties require.
3. Do not sit on equipment and propel it with your foot.
4. If you have been authorized to stand while riding on equipment, be prepared for sudden stops.

9.34.2 Keeping Rear View

When two or more employees are on self-propelled equipment, one must be positioned to have the best possible view to the rear. That employee must watch for overtaking equipment or trains and must watch over any equipment being towed.

9.35 Operating Self-Propelled Maintenance Equipment

Follow these precautions when operating equipment:

1. Assign a seat location to each rider. If safety belts are available, wear them.
2. If there is a shortage of seats, authorize riders to stand, provided there is room within the end and side limits for riders to:
   - Maintain handholds and firm footing, **and**
   - Keep clear of moving parts, controls, and operator.

3. Test the brakes immediately after starting.
4. When operating equipment, keep your body, arms, hands, legs, and feet in safe positions. Do not let them extend beyond the side or end of:
    - Foot platforms
    - Steering lever
    - Other parts of the equipment
5. When employees are getting on, getting off, or between self-propelled equipment, disengage the clutch or gears and set the brakes to hold.
6. Secure movable work parts in the UP or CLEAR position before moving.
7. Do not allow anyone to distract you or interfere with your duties. If this happens, stop all movement.
8. Constantly look out for obstructions or unsafe conditions in the direction you are moving. If you cannot see ahead, arrange to have someone keep a constant lookout in the direction you are moving.
9. If a person or animal is near the equipment:
    - Reduce speed.
    - Sound the horn.
    - Be prepared to stop.
10. When you are descending a steep grade, keep the clutch engaged and use low or second gear to control the speed of the equipment.
11. Keep a sufficient distance between equipment to avoid collisions. Increase the distance between equipment when:
    - The rail is wet.
    - The equipment is moving on territory with grades or curves that limit sight distance.

9.35.1 Operating or Working With Shop Trucks or Tractors

Follow these precautions when operating or working with trucks, trailers, tractors, or other shop or power-operated equipment:

1. Do not push four-wheel trucks or trailers out of the way with your foot. Pull them by hand.
2. Before you reverse the power of a tractor, truck, or other power-operated equipment, wait until it is completely stopped. Make sure the route is clear.
3. When helping on a shop truck or tractor and you must walk to another location, always walk behind the truck or tractor. Make sure the operator knows where you are at all times.
4. Before you place battery-charging plugs in a receptacle, make sure the controllers of the electric truck or tractor are OFF.
5. When hauling material or tools on push trucks:
    a. If material or tools are stacked high enough to fall, use side stakes or racks.
    b. Distribute the load evenly, as follows:
        - Lay tools flat with their points to the rear.
        - Lay heavy items toward the trailing end.
    c. Make sure that items are clear of operating controls, moving parts, seating space, standing space, and handrails.
    d. Haul long material using two or more push trucks, if possible.

9.36 Placing or Removing Equipment

Follow these precautions when placing self-propelled equipment on or removing the equipment from track:

1. Stop the engine unless its assistance is needed to place the equipment.
2. Do not place equipment if a train is passing on a track less than 20 feet away.

9.37 Moving Equipment

Follow these precautions when moving self-propelled equipment on track:

1. Push equipment from the rear, when possible. Keep clear of the front end of the equipment.
2. If equipment must be pushed from the side, keep your feet as far as possible from the wheels.
3. Place your hands where they will not be caught by moving parts or rolling, shifting, or falling objects.

9.37.1 Moving Maintenance Equipment Through Self-guarded Frog

If you move or operate equipment or a trailer through a self-guarded frog, immediately afterward make sure that all wheels are properly on the rails.

9.38 Coupling Maintenance Equipment

Follow these precautions when coupling or uncoupling self-propelled equipment:

1. Use only an approved rigid tow bar equipped with a safety pin.
2. Do not leave one end of a tow bar coupled if the other end has been uncoupled.
3. Before you couple or uncouple tractors, trucks, trailers, or other equipment:
    a. Make sure the equipment is stopped.
    b. Keep your hands clear of rings, handles, catches, and other pinch points.
    c. Never uncouple trailers under a load.

9.39 Protecting Unattended Self-Propelled Maintenance Equipment

If equipment is not continuously attended, follow these precautions to protect the equipment from moving:

1. Do not foul tracks, walkways, doorways, elevators, or passageways.
2. Stop the engine or motor and remove the ignition key. If equipped, remove the operating handle and secure the steering handle in the vertical position.
3. Engage the clutch or gears.
4. Set the brakes to hold, if the equipment allows.
5. If on a slope, set the brakes and chock the wheels.
6. For each end piece of equipment, run a chain through one wheel and around a rail. If the wheel is solid, run the chain around the head end of the frame or other part that will not allow the chain to slip off. At the end of a tour of duty, lock the chain with a private lock.

9.40 Maintaining Proper Speed

When operating equipment or track cars on track, do not exceed the maximum speeds in the following table.

NOTE: If the track has a restriction, the restricted speed takes precedence over the maximum speed in the following table. Do not exceed the restricted speed.

MAXIMUM SPEEDS	
Situation	**MPH**
1. Operating a hi-rail passenger vehicle	
a. Forward	50
b. Backward	10
2. Operating a hi-rail truck	
a. Forward	30
b. Backward	10
3. Operating any other track car	
a. Forward	30
b. Backward	10
4. Approaching a work station on the track where you are running, or on an adjacent track	Be prepared to stop short until you can see that the employees are clear.
5. Running when a train is standing on the adjacent track	10
6. Running when a train or locomotive on the adjacent track passes a hi-railer	Stop
7. Running on rail that is wet or covered with grease, ice, snow, or leaves	Be prepared to stop.
8. Running over highway crossing, railroad grade crossing, switch turnout, or derail	10
9. Running in any condition or obstruction that prevents the rail wheels from moving freely	5
10. Operating rail detector or geometry cars	50
11. Operating through self-guarded frogs or SW point guards, or diverting through spring frogs	1

9.41 Passing Highway Grade Crossing Operating Self-Propelled Maintenance Equipment

Follow these precautions when passing a highway grade crossing:

1. As you approach the highway grade crossing, prepare to stop and sound warning.
2. Before you proceed over the crossing, make sure you have time to do so safely.
3. If a vehicle is approaching, stop your equipment and allow the vehicle to pass over the track. Signal the driver to proceed, if necessary.
4. If your view of the highway traffic is restricted in any way, stop your equipment clear of the crossing and provide flagging protection.

9.42 Working on or About Car Retarder

9.42.1 Safety Precautions

When you are working about a car retarder, switch, movable point frog, derail, or a derail connection, keep all objects and parts of your body clear of moving parts unless the pinch points have been blocked.

NOTE: You may lubricate switch points with a long-handled brush without using blocking.

9.42.2 Maintenance

Follow these precautions before you work on a car retarder that is out of service for maintenance:

1. If you are working on a retarder, have the employee in charge:
   a. Open the controls.
   b. Apply a warning tag (S 105).

2. If you are working on a group or intermediate retarder that requires the use of track, use proper on-track protection.

9.43 Operating Snow Blower

Follow these precautions before operating a jet or rotary snow blower:

1. Clean the steps and platform.
2. Inspect the lights and test the horn.
3. Notify the employee in charge of the track you will be clearing. Make sure the employee in charge is aware that you will be operating the snow blower and is aware of hazards, such as flying debris.
4. Raise and center the nozzle.
5. Sound the horn and make sure no one is in front of the blower.

9.44 Operating Rotary Brush Cutter

Follow these precautions when operating a rotary brush cutter:

1. Constantly look out for people or animals that may be struck by the cutter or by flying debris.
2. To avoid picking up debris, keep the cutting head at least 12 inches above the ground.
3. Stop work within 300 feet of people or animals that may be struck by the cutter or by flying debris. Do not resume work until they are clear.
4. Stop work within 300 feet of a public thoroughfare or building.
5. Before you leave the controls, stop the engine or motor and wait until the cutting head stops rotating.

10. PROTECTION WHEN WORKING IN YARD AND ON TRACKS

10. PROTECTION WHEN WORKING IN YARD AND ON TRACKS

10.1 Introduction

This chapter outlines procedure and protection for working in a yard and on tracks. It gives responsibilities of employees, the employee in charge, and the employee in charge of on track protection. It also gives responsibilities of watchmen, as well as safety rules for providing protection from trains, working on and clearing tracks, providing blue flag protection, and working in various settings.

10.2 Responsibilities of Employees

Employees must follow these precautions when working in yard and on tracks:

1. Keep at least 30 feet from passing trains and equipment, if possible. Face the direction from which the train is approaching. Watch for projecting, dragging, or falling objects.
2. Do not stand, walk on, or foul tracks except when necessary to perform your duties.
3. Before fouling any track:
    a. Verify that proper on track protection is being provided.
    b. Acknowledge understanding of the on track procedures being used.
    c. Know who is the employee responsible for on track protection.

    NOTE: Items a. through c. will be provided in your job briefing.
4. Do not perform work that will interfere with the safe passage of trains.
5. Inspect all passing trains. If you detect a dangerous condition, use any available means to warn crewmembers on the passing

train to stop. If the train does not stop at once, notify the dispatcher.

6. Cross tracks at least 25 feet from standing locomotives and cars.

7. Do not pass between cars standing less than 50 feet apart on the same track unless:

   - It is safe to do so.
   - It is absolutely necessary.
   - You have three-step protection.

   NOTE: Refer to the Glossary for the definition of three-step protection.

8. If you are in a confined place:

   a. Keep as far away as possible from passing trains.

   b. Secure loose clothing, if possible and maintain a handhold until the train has passed.

   c. Occupy manholes when a train approaches if you are in a tunnel that has manholes.

9. When clearing track, position tools, material, equipment, or other objects so that they will not be struck by a train.

10. Roadway workers on or about the track must wear an approved high visibility garment.

11. Give hand signals for movement of work train or wreck train only if:

    - You are a member of the train crew.
    - You have the approval of the person in charge.

    EXCEPTION: Emergency stop signals may be given by anyone.

12. Place equipment, material, or objects at least 10 feet from the gauge of the nearest track, if possible.

    NOTE: Also refer to Rule 2.10, Walking on, Near, and Crossing Tracks.

13. Protect ladder, scaffold, or other work equipment where it could collide with a person, self-propelled equipment, or vehicle.

    a. Surround the equipment with a suitable guard, at least 10 feet from it that is properly marked and illuminated.

    b. Assign an employee equipped with an appropriate warning device to guard the area.

10.2.1 Challenging Directives that Violate Safety Rules

Roadway workers have the absolute right to challenge, in good faith, any directive that would violate a Safety or Operating Rule. If you receive such a directive:

1. Inform the employee in charge that the on-track safety protection to be applied does not comply with the Safety Rules.
2. Remain clear of the track until the conflict is resolved.

10.3 Employee in Charge

10.3.1 Designating Employee in Charge

When roadway workers are working on or about track, one employee must be designated the employee in charge.

When two or more gangs work as a single gang, one employee must be designated the employee in charge. Generally, the employee in charge will be the senior foreman or the foreman in whose territory the work is being performed.

10.3.2 Responsibilities of Employee in Charge

The employee in charge is responsible for the safety, instruction, performance, and on-track protection of all employees under his or her jurisdiction.

If you are the employee in charge, you also have the following responsibilities:

1. Prepare employees for their job assignments by giving all employees under your jurisdiction a job briefing as follows:
    a. Inform employees of the general plan and procedure the work will follow and the on-track protection measures that will be used.
    b. Make definite work assignments.
    c. Inform employees where they must go if they must clear for trains.
    d. Do not consider the job briefing complete until all employees acknowledge understanding of the on-track protection being used.
2. Wear a warning whistle when on or about the track.
3. If the on-track protection changes or is no longer in effect:
    a. Immediately warn employees to clear the track.
    b. Conduct an additional job briefing before you allow employees to return to the track.
4. Ensure that employees comply with all applicable rules.
5. Personally and continuously supervise any work involving unusual hazards and discuss specific procedures to protect against such hazards.
6. Promptly advise your supervisor if an employee does not comply with your orders or does not follow safe work practices.

10.4 Employee Responsible for On-Track Protection

10.4.1 Designating Employee Responsible for On-Track Protection

If two or more gangs are working within the same Working Limits, one employee must be designated the employee responsible for on-track protection.

If your duties require fouling a track, you must have one employee responsible for providing on-track protection. This employee must be qualified on the NORAC Operating Rules, the *On-Track Safety Manual*, and the physical characteristics of the territory where the work will be performed.

10.4.2 Duties of Employee Responsible for On-Track Protection

If you are the employee responsible for on-track protection, you also have the following responsibilities:

1. Conduct job briefings with each employee (or the employees in charge if multiple gangs are included in your Working Limits) that include the on-track protection that will be provided and the safety procedures that will be followed.
2. Do not consider the job briefing complete until all employees acknowledge understanding of the on-track protection being used.
3. Before any employee fouls a track, inform each employee (or each employee in charge if multiple gangs are included in your Working Limits) of the on-track protection procedures to be used and followed while the work is being performed at that time and that location.
4. Make sure that protection is in effect on all adjacent tracks that are not included in the Working Limits when performing large-scale track maintenance, including but not limited to rail, tie, and surface gangs; production in-track welding; ballast distribution; and undercutting.

NOTE: Adjacent tracks are all tracks with track centers less than 25 feet from the center of the track where the work is being performed.

5. If the on-track protection changes during the work period, inform each employee before the change becomes effective, except in an emergency. If an employee cannot be notified in advance because of an emergency, have the employee clear the track immediately and stay clear until on-track protection is reestablished.

6. Notify all employees before the Working Limits are released for the operation of trains. Do not release the work area until all affected employees have either left the track or have been given on-track protection by watchmen.

10.5 Protecting Gangs With Watchmen

Watchmen establish on-track protection by warning employees of the approach of trains in ample time for them to move to or remain as a place of safety according to the Watchmen Rules.

10.5.1 Assigning Watchmen

Employees in charge are responsible for a safe operation and must exercise every reasonable precaution to protect employees in their charge. They will assign watchmen and advance watchmen when needed.

1. When a gang fouls a track outside the Working Limits, assign one or more watchmen to warn employees of approaching trains, engines, and on-track equipment.

2. Assign only trained and qualified watchmen who have received a qualification card.

   NOTE: Trained and qualified watchmen must carry their qualification cards while on duty.

3. If employees may have trouble hearing the watchman's warning whistle or horn (due to noisy machinery, the size of the gang, or any other reason), assign additional watchmen as needed.

4. If the watchman does not have sufficient sight distance to clear the gang at least 15 seconds before the train or engines reach the work site, assign advance watchmen. See the following table.

Traveling Distances of Trains

Miles Per Hour	Feet Per Sec.	Feet in 15 Sec.
10	14.7	221
15	22.0	330
20	29.3	440
25	36.7	551
30	44.0	660
35	51.3	770
40	58.7	881
45	66.0	990
50	73.3	1100
55	80.7	1211
60	88.0	1320
65	95.3	1430
70	102.7	1541
75	110.0	1650
80	117.3	1760

5. If weather or any other reason restricts visibility, use additional on-track protection measures as needed.

Precautions for Excessive Noise

Before starting any job procedure that involves an employee fouling a live track, regardless of the authorized speed of that track, and the job procedure also involves operating power tools, machinery, or equipment, or when outside noise interferes with the ability to ensure hearing an approaching train, take one of these precautions:

- Station a watchman close enough to employees to be able to touch them if a train approaches.
- Take the track out of service, **or**
- Get verbal permission to temporarily foul the track in accordance with the NORAC Operating Rules.

10.5.2 Responsibilities of Watchmen

Where Working Limits are not established, the employee in charge assigns watchmen to watch for approaching trains and to warn employees to clear the tracks. If a watchman has not been assigned, the employee in charge acts as a watchman.

If you have been assigned as a watchman you are responsible to:

1. Give full attention to detecting the approach of trains and warning employees to clear the tracks.
2. Do not perform any other duties, even momentarily.
3. Signal employees to clear the tracks if:
   - You do not have sufficient sight distance to detect approaching trains and clear the gang at least 15 seconds before the train reaches the point of work, **or**
   - You cannot give your full attention to your duties as watchman.
4. Do not leave your assigned station until:
   - The employee in charge determines that the gang is no longer fouling the track and watchmen are no longer needed, **or**
   - The employee in charge has assigned another watchman who is in position and watching for approaching trains.

10.5.3 Duties of Watchmen

Watchmen are responsible for watching for approaching trains and signaling employees to clear the tracks. If a watchman has not been assigned, the employee in charge will be the watchman.

Follow these procedures when you are assigned the duties of a watchman:

1. When a train, engine, or on-track equipment approaches from either direction, warn employees in time for them to clear tracks at least 15 seconds before the train approaches the point of work. Assume that the train is moving at the maximum speed authorized for that track.

NOTE: You may need to give additional warnings around noisy operations.

2. When an advance watchman signals the approach of a train, or signals that a train is clear, repeat the signal to the advance watchman, then signal the gang.
3. Signal employees of an approaching train as follows:
   a. Sound a warning whistle or horn.
   b. Hold the white disc at arm's length above your head.
   c. Hold the white disc horizontally at arm's length toward the place designated in the job briefing where employees must go to clear the tracks.
4. Signal employees that it is safe to resume work as follows:
   a. Hold the white disc horizontally at arm's length toward the work site.

10.5.4 Duties of Advance Watchmen

Advance watchmen are responsible for watching for approaching trains and signaling the watchman when a train is approaching. The watchman then acknowledges the signal by repeating it back to the advance watchman.

Follow these procedures when you are performing the duties of an advance watchman:

1. Signal the watchman of an approaching train as follows:
   a. Sound a warning whistle or horn.
   b. Hold the white disc at arm's length above your head.
2. Signal the watchman that it is safe to resume work as follows:
   a. Hold the white disc horizontally at arm's length toward the point of work.
3. If the watchman does not repeat your signal, signal train to stop.

10.5.5 Watchman Equipment

Watchmen, advance watchmen, and employees in charge must have the appropriate equipment to perform their duties. If you are a watchman, advance watchman, or the employee in charge, follow these procedures when you are protecting or supervising employees:

1. Keep your equipment in good condition and ready for use.
2. If you are a watchman or advance watchman, you must have a standard Conrail watchman's bag. Before performing your duties, check the bag's contents to make sure that all of the required equipment is in the bag and in good condition.
3. Wear the warning whistle or horn outside your clothing to access it quickly.
4. Have and use the equipment indicated in the following table.

EQUIPMENT FOR WATCHMEN	
Good Visibility	
Watchman	• Warning whistle or horn • Standard white disc*
Advance Watchman	• Warning whistle or horn • Standard white disc • Red flag
Employee in Charge	• Warning whistle or horn
Poor Visibility (in tunnel or at night)	
Watchman	• Warning whistle or horn • Suitable white light
Advance Watchman	• Warning whistle or horn • Suitable white light • Two red fusees
Employee in Charge	• Warning whistle or horn • Suitable white light

***NOTE: A watchman assigned to protect only one employee who is performing work where advance watchmen are not required does not need to be equipped with a white disc.**

10.5.6 Stationing Watchmen and Advance Watchmen

The employee in charge stations watchmen and advance watchmen. If you are the employee in charge, station watchmen and advance watchmen as follows:

1. Station watchmen so that they are:

   - Clear of tracks.

     EXCEPTION: A watchman assigned to protect only one employee who is performing work where advance watchmen are not required does not need to stand clear of all tracks.

   - Able to see trains approaching in both directions.
   - Close enough to the gang to allow employees to hear the warning whistle or horn clearly.
   - Far enough from the gang to prevent being distracted by the work.

2. When employees are working near noisy equipment that will interfere with the watchman's ability to communicate with the employees, station an employee at the equipment's shut-off valve.

   NOTE: This employee watches the watchman and, at the watchman's signal, shuts off the equipment so the other employees can hear the watchman's signals.

3. Station advance watchmen far enough from the gang that they can clear the gang at least 15 seconds before the train reaches the point of work.

10.5.7 Stop Sign Distance

Refer to Figure 10A for placement of approach speed signs to speed limit signs and stop signs.

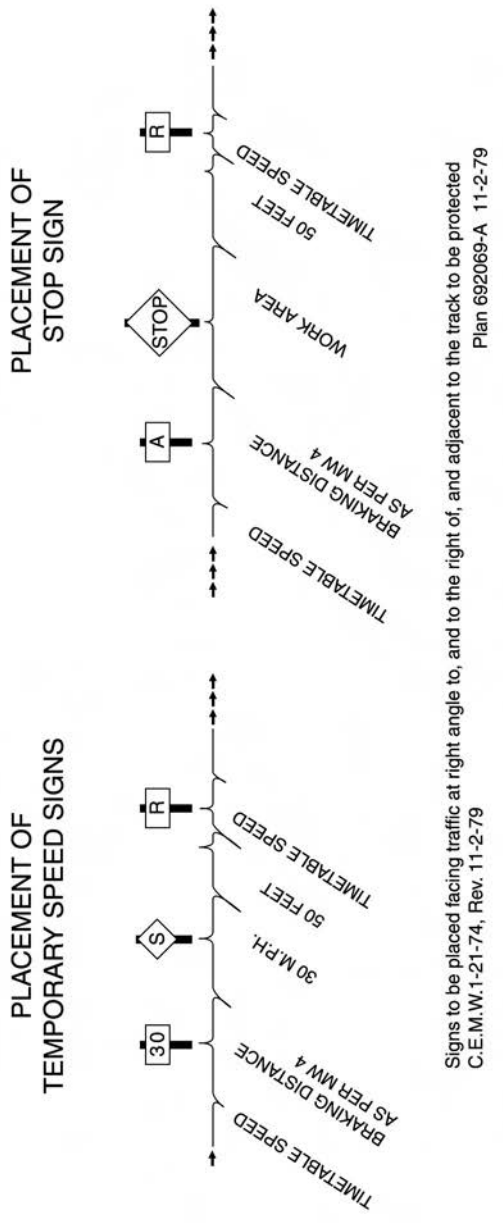


Figure 10A. Stop Sign Distances

10.6 Protection for Lone Worker

As an employee working alone and providing your own on-track protection, you may watch for trains yourself (where permitted) or use another method according to Rule 10.6.2.

10.6.1 Individual Train Detection (Watching for Trains Yourself)

If you are a lone worker who fouls a track while performing routine inspection or minor correction, you may watch for trains yourself only if the following 8 conditions are met:

1. You are trained and qualified to use individual train detection (ITD).
2. You are not within:
   - Interlocking, **or**
   - Remotely controlled hump classification yard
3. You can visually detect the approach of a train moving the maximum speed authorized for that track and move to a determined place of safety at least 15 seconds before the train reaches you.

   NOTE: The place of safety may not be on another track unless Working Limits are established on that track.
4. No power-operated tools or roadway maintenance machines are in use within your range of hearing.
5. Your ability to see and hear approaching trains and other on-track equipment is not impaired by background noise, lights, fog, precipitation, passing or standing trains, or any other physical conditions.
6. You may not occupy a position or engage in any activity that would interfere with your ability to maintain a vigilant lookout for, and detect the approach of, a train moving in either direction.
7. You must conduct a job briefing (communication) with your supervisor or other designated employee, such as the Dispatcher

or Operator, at the beginning of your tour of duty. This briefing must include:

- Your planned itinerary, **and**
- On track protection you plan to use

EXCEPTION: If you are unable to communicate with the designated employee due to a communications failure, you may begin the work and conduct the job briefing as soon as communications are restored.

8. You have completed a Statement of On Track Safety. Only one statement can be in effect at a time. See Figure 10B.

ITD Statement of On Track Safety

Name_____ Date_____ Time_____

Line_____ Track Number_____ From M.P._____ To M.P._____

Yard_____ Track Number(s)_____

Instructions:
This form must by used by a Lone Worker when using ITD . Use your Timetable to determine the maximum speed authorized in the area you will be fouling. Place an X in the box adjacent to this maximum authorized speed. Determine that you have the required sight distance to clear the track 15 seconds prior to the arrival of the train. You must produce this form when requested by an FRA Representative or Conrail Supervisor, and retain it for seven (7) days after use.

Maximum Authorized Speed In MPH	Required Sight Distance In Feet	Maximum Authorized Speed In MPH	Required Sight Distance In Feet	Maximum Authorized Speed In MPH	Required Sight Distance In feet
5	110	45	990	85	1870
10	220	50	1100	90	1980
15	330	55	1210	95	2090
20	440	60	1320	100	2200
25	550	65	1430	105	2310
30	660	70	1540	110	2420
35	770	75	1650		
40	880	80	1760		

The Lone Worker has the absolute right to use On Track Protection procedures other than ITD if deemed necessary and to occupy a place of safety until another form of protection can be established.

Figure 10B. Statement of On Track Safety

10.6.2 Establishing On-Track Protection

If you are a lone worker and cannot comply with all the provisions of Rule 10.6.1, Individual Train Detection (Watching for Trains

Yourself), you must establish another form of on-track protection before you foul any track (see Appendix A [Types of On Track Protection]).

10.7 Working on and Clearing Tracks

This section gives procedures for working on and clearing controlled and non-controlled tracks as well as tracks and retarders in a remotely controlled hump classification yard.

10.7.1 Safety Precautions

Follow these safety precautions when clearing tracks:

1. When you are notified or become aware of the approach of a train, stop all work. Clear the tracks at least 15 seconds before the train reaches you.

   NOTE: Refer to the "Traveling Distances of Trains" table in Rule 10.5.1

2. Report to the location designated during the job briefing by the employee in charge.

   NOTE: You may not clear onto another track unless Working Limits have been established on that track.

3. Stop all equipment and vehicles on the right of way while the train is passing.
4. Do not leave tools, objects, material, or equipment where they could be struck by the train.
5. Face the direction from which the train is approaching. Watch for projecting, dragging, or falling objects.
6. Inspect all passing trains. If you detect a dangerous condition, use any available means to warn crewmembers on the passing train to stop. If the train does not stop at once, notify the Dispatcher.
7. Stay clear until you are notified that it is safe to resume work.

10.7.2 Clearing Controlled Track

Follow this procedure to clear a controlled track, which is any track shown in the timetable as being under the control of a Dispatcher or Operator.

1. Clear all tracks, keeping at least 30 feet from passing trains and equipment, if possible. Do not clear onto another track.

   EXCEPTION: When it is not possible to clear all tracks, the safest location might be on the track where you are working, as long as Working Limits remain in effect on that track.

2. If you are operating equipment and you are within the gauge of the track, stay on your machine. If you are not within the gauge of the track, dismount the equipment and clear the track.

10.7.3 Working on Non-Controlled Industrial and Yard Tracks

Follow these procedures when working on and clearing non-controlled track (industrial, yard, or any other track not controlled by a Dispatcher or Operator):

1. Make the Working Limits inaccessible to trains, engines, or other on-track equipment using one of the following methods:

   a. A switch lined, effectively secured, and effectively tagged with an S-105 “Do Not Operate” tag in one of the following ways:

      - Private lock on switches that will accommodate them
      - Properly secured switch point clamp
      - Properly driven spikes and wedges that require appropriate tools to remove them

   b. A derail secured in the derailing position and tagged with an S-105 tag.

   c. A remotely controlled switch or derail lined to prevent access to the Working Limits and secured with a blocking device by the employee who controls the switch according to NORAC Operating Rules.

2. If a train approaches on an adjacent track, stop work and stand in the center of the track where you are working.
3. If you are a lone worker using ITD on non-controlled track (other than in a remotely controlled hump classification yard):
    a. The place of safety cannot be on a track that is not shown on your Statement of On-Track Safety, unless Working Limits are established on that track.
    b. A maximum of three adjacent tracks may be shown on one Statement of On-Track Safety.
    c. You must always be prepared to clear all tracks if necessary.

10.7.4 Working on Tracks and Retarders in a Remotely Controlled Hump Classification Yard

NOTE: When working in a remotely controlled hump classification yard, you must have protection from trains and equipment on both sides of your Working Limits.

1. When fouling any track in a remotely controlled hump yard (including the hump area, the class tracks, and the pull out ladder tracks), either make the Working Limits inaccessible to trains or assign watchmen.
    a. Make the Working Limits inaccessible to trains using either or both of the following methods:
        - A switch or derail aligned to prevent access, secured with an effective securing device, and tagged with an S-105 “Do Not Operate” tag.
        - A remotely controlled switch lined to prevent access to the Working Limits, secured with a blocking device, and logged on the CT-1888 form by the employee who controls the switch according to NORAC Operating Rules.

b. Assign watchmen to warn employees of approaching trains or equipment. Watchmen may be used to provide protection only when:

- The track is safe for the passage of trains, **and**
- Employees can clear the tracks at least 15 seconds before the train or equipment reaches the point of work.

2. When fouling tracks while working on a car retarder, and a train or equipment approaches on another track:

a. If the track centers are less than 20 feet, discontinue all work.

b. If the track centers are 20 feet or more, work may continue.

3. When using derails to protect the Working Limits:

a. Install a derail at least 150 feet from the Working Limits toward the crest of the hump.

b. Install a derail at least 75 feet from the Working Limits in the other direction.

c. Protect all entrances to the Working Limits

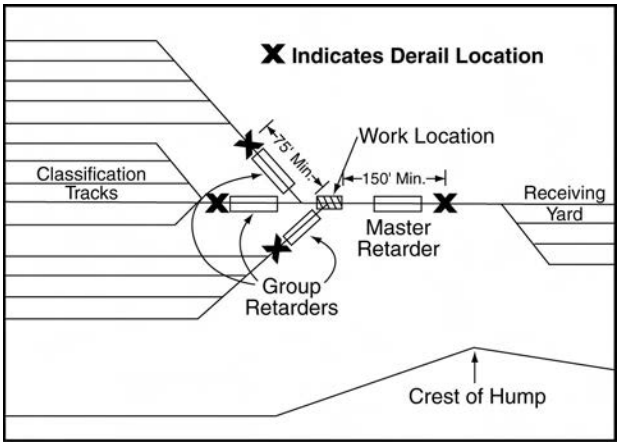


Figure 10C. Placing Derails in Hump Yards

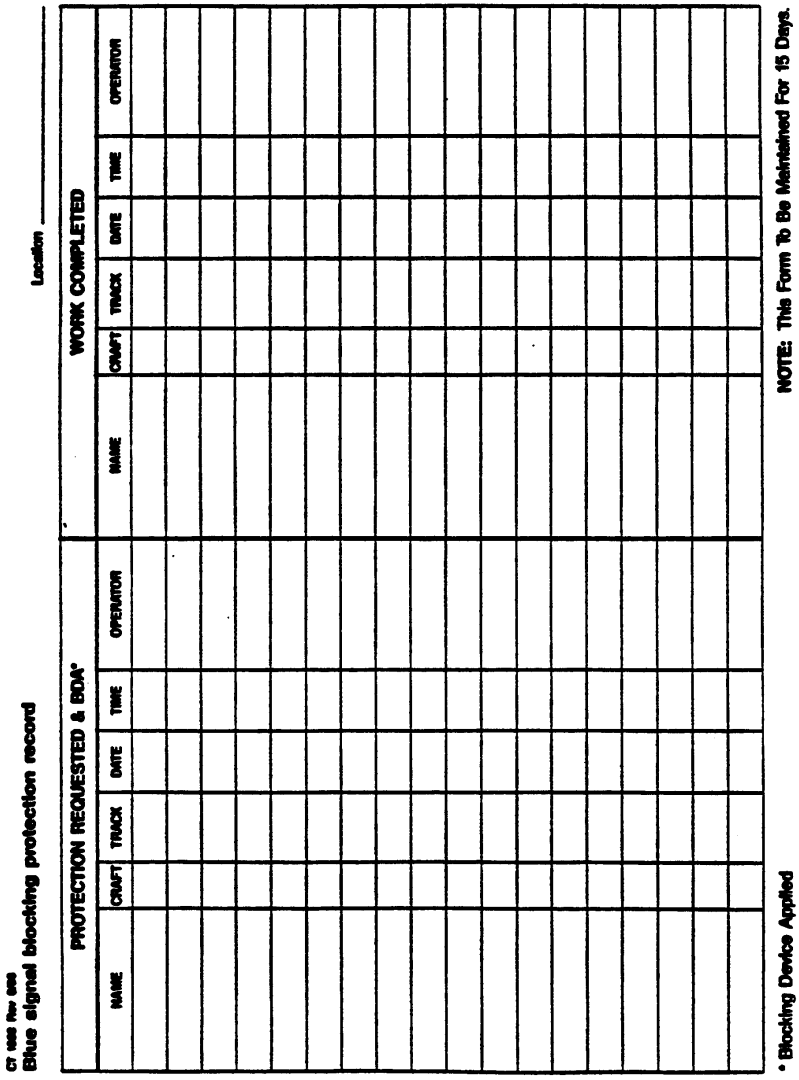


Figure 10D. CT-1888 Form

4. Employees in charge who provide on-track protection in a hump classification yard must be specifically qualified in that yard.

BLUE FLAG PROTECTION

10.8 Blue Signal Protection of Workmen

This rule outlines the requirements for protecting railroad workmen who are inspecting, testing, repairing, and servicing rolling equipment. In particular, because these tasks require the workmen to work on, under, or between rolling equipment, workmen are exposed to potential injury from moving equipment.

As used in this rule, the following definitions apply:

Workmen. Railroad employees assigned to inspect, test, repair, or service railroad rolling equipment or components, including brake systems. Train and yard crews are excluded, except when they perform the above work on rolling equipment not part of the train or yard movement they are handling or will handle.

- "Servicing" does not include supplying cabooses, engines, or passenger cars with items such as ice, drinking water, tools, sanitary supplies, stationary, or flagging equipment.
- "Testing" does not include an employee making visual observations while on or alongside a caboose, engine, or passenger car.

Group of Workmen. Two or more workmen of the same or different crafts who work as a unit under a common authority and communicate with each other while working.

Rolling Equipment. Engines, cars, and one or more engines coupled to one or more cars.

Blue Signal. During the day, a clearly distinguishable blue flag or light, and at night, a blue light. The blue light may be steady or flashing.

The blue signal does not need to be lighted when it is attached to the operating controls of an engine and the inside of the engine cab area is lighted enough to make the blue signal clearly distinguishable.

Effective Locking Device. When used in relation to a manually operated switch or a derail, a lock that can be locked or unlocked only by the craft or group of workmen applying the lock.

Car Shop Repair Area. One or more tracks within an area where rolling equipment testing, servicing, repairing, inspecting, or rebuilding is controlled exclusively by mechanical department personnel.

Engine Servicing Area. One or more tracks within an area where engine testing, servicing, repairing, inspecting, or rebuilding is controlled exclusively by mechanical department personnel.

Switch Providing Direct Access. A switch that if used by rolling equipment could permit the rolling equipment to couple to the equipment being protected.

A. What a Blue Signal Signifies

A blue signal signifies that workmen are on, under, or between rolling equipment and requires that:

1. Rolling equipment must not be coupled to or moved, except as provided in “Movement in Engine Servicing Area” and “Movement in Car Shop Repair Area” of this rule.
2. Rolling equipment must not pass a blue signal on a track protected by the signal.
3. Other rolling equipment must not be placed on the same track so as to block or reduce the view of the blue signal.
    a. However, rolling equipment may be placed on the same track when it is placed on designated engine servicing area tracks or car shop repair area tracks, or when a derail divides a track into separate working areas.
4. Rolling equipment must not enter a track when a blue signal is displayed at the entrance to the track.

Blue signals or remote control blue signals must be displayed for each craft or group of workmen who will work on, under, or between rolling equipment.

Protection Removed. Only the craft or group who placed the blue signals may remove them. Remote control display may be discontinued when directed by the craft or group that requested the protection. When blue signal protection has been removed from one entrance of a double-ended track or from either end of rolling equipment on a main track, that track is no longer under blue signal protection.

B. How to Provide Protection

When workmen are on, under, or between rolling equipment and exposed to potential injury, protection must be provided as follows:

On a Main Track. A blue signal must be displayed at each end of the rolling equipment.

On Other Than a Main Track. One of these three methods of protection or a combination of these methods must be provided:

1. Each manually operated switch that provides direct access must be lined against movement onto the track and secured by an effective locking device. A blue signal must be placed at or near each such switch. In addition, any facing point crossover switch must be lined against movement and secured by an effective locking device.

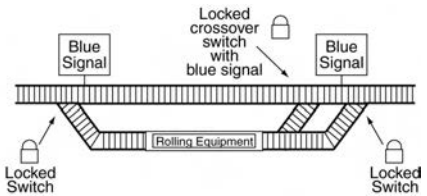


Diagram A

2. A derail capable of restricting access to the track where work will occur must be locked in derailing position with an effective locking device and:

a. Positioned at least 150 feet from the rolling equipment to be protected, **or**

b. Positioned at least 50 feet from the end of rolling equipment on a designated engine servicing track or car shop repair track where speed is limited to not more than 5 MPH.

A blue signal must be displayed at each derail.

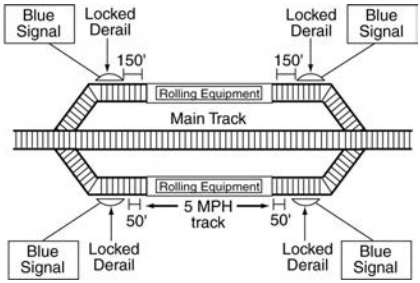


Diagram B

3. Where remote control switches provide direct access, the employee in charge of the workmen must tell the switch operator what work will be done. The switch operator must then:

   a. Inform the employee in charge of the workmen that the switches have been lined against movement to the track and devices controlling the switches have been secured.

   b. Not remove the locking devices unless the employee in charge of the workmen says it is safe to do so.

   c. Maintain for 15 days a written record of each notification that includes:

      - Name and craft of the employee in charge of the workmen requesting protection
      - Identification of track involved
      - Date and time the employee in charge of workmen is notified that protection was provided

- Date, time, name, and craft of the employee in charge of workmen who authorized removal of the protection

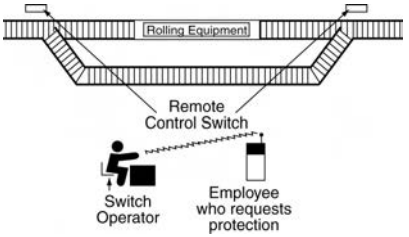


Diagram C

C. Blue Signal Readily Visible to Engineer

In addition to providing protection as required in "On a Main Track" and "On Other Than a Main Track," when workmen are on, under, or between an engine or rolling equipment coupled to an engine:

1. A blue signal must be attached to the controlling engine.
2. A blue signal must be visible to the engineer or employee controlling the engine.
3. The engine must not be moved.

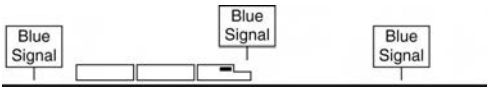


Diagram D

D. Protection for Workmen Inspecting Markers

Blue signal protection must be provided for workmen when they are:

1. Replacing, repositioning, or repairing a marker, and the rear of the train is on any track, **or**
2. Inspecting a marker by repositioning the activation switch or covering the photoelectric cell, and the rear of the train is on other than a main track.

E. Protection for Emergency Repair Work

If a blue signal is not available for employees performing emergency repairs on, under, or between an engine or rolling equipment coupled to an engine, the employee controlling the engine must be notified and appropriate measures taken to provide protection for the employees.

F. Movement in Engine Servicing Area

An engine must not enter a designated engine servicing area until the blue signal protection is removed from the entrance. The engine must stop short of coupling to another engine.

An engine must not leave a designated engine servicing area unless the blue signal is removed from the engine and the track in the direction of movement.

Blue signal protection removed to let engines enter or leave the engine servicing area must be restored immediately after the engine enters or clears the area.

An engine protected by blue signals may be moved on a designated engine servicing area track when:

1. An authorized employee operates the engine under the direction of the employee in charge of workmen.
2. The blue signal has been removed from the controlling engine to be repositioned.
3. Workmen have been warned of the movement.

G. Movement in Car Shop Repair Area

When rolling equipment on car shop repair tracks is protected by blue signals, a car mover may reposition the equipment if:

1. Workmen have been warned of the movement.
2. An authorized employee operates the car mover under the direction of the employee in charge of workmen.

10.8.1 Protection of Utility Employees

This rule outlines the requirements for allowing utility employees to work without blue signal protection.

As used in this rule, a utility employee is a railroad employee assigned as a temporary member of a train or yard crew.

A. Requirements to Start Work

A utility employee may work with more than one crew during the same shift or tour of duty, but may work as a member of only one train or yard crew at a time.

No more than three utility employees may work with one train or yard crew at the same time.

A utility employee may become a member of a train or yard crew under the following conditions:

- The utility employee establishes communication with the designated crewmember of the train or yard crew before starting work.
- The designated crewmember identifies the utility employee to each member of the crew, and each crewmember acknowledges the utility employee's presence.
- The designated crewmember authorizes the utility employee to work as a temporary member of the crew.

B. Requirements While Working on, Under, or Between

Before a utility employee will be on, under, or between rolling equipment, the following applies:

- All members of the crew must communicate with each other to understand the work to be done.
- The Engineer must be in the cab of the assigned controlling locomotive. However, another member of the same crew may replace the Engineer when the locomotive is stationary.

C. Requirements When Work Ends

A utility employee is released from a train or yard crew when:

- The utility employee notifies the designated crewmember the work is completed.
- The designated crewmember notifies each crewmember that the utility employee is being released.
- After the designated crewmember releases the utility employee from the train or yard crew, each crewmember acknowledges this notice.

WORKING IN VARIOUS SETTINGS

This section gives safety rules for working near a highway grade crossing, working on bridges and in tunnels, and protecting camp cars.

10.9 Working Near a Highway Grade Crossing

Follow these precautions when working at or within 15 feet of a highway grade crossing:

1. Wear a high visibility garment.
2. Use proper protection for yourself and the traveling public.
3. If your view of highway traffic is restricted, use additional protective devices, such as flares, reflective triangles, or the vehicle's four-way emergency flashers.

10.9.1 Repairing Cantilever Signals and Crossing Gates

Follow these precautions when repairing cantilever signals or crossing gates:

1. Avoid standing or working in a traffic lane.
2. Before you work on rotating gate pedestals or cantilever arms, swing them out of the traffic lane.

3. Before you work on non-rotating gate pedestals or cantilever arms, flash all warning lights before you occupy the traffic lane.

10.10 Working on Bridges and in Tunnels

Follow these precautions when you are working on a bridge or in a tunnel and a train approaches:

1. Keep as far as possible from the passing train.
2. Secure loose clothing, if possible.
3. Maintain a handhold on a stationary object until the train has passed.
4. If you are working in a tunnel with manholes, occupy a manhole until the train has passed.
5. Have the employee in charge arrange for the exclusive use of the track if:
   - The side clearance on a bridge or in a tunnel is limited, **and**
   - Manholes or other safe places are not available.

10.11 Protection of Occupied Camp Cars

This rule outlines the requirements for protecting occupied camp cars. As used in this rule, the following definitions apply:

Camp Car. Any on track vehicle, including outfit, camp, or bunk car or modular home mounted on a flat car to house railroad employees. Such equipment is not considered an camp car when placed in a wreck train.

Effective Locking Device. When used in relation to a manually operated switch or a derail, a lock that can be locked or unlocked only by the craft or group of workmen applying the lock.

Rolling Equipment. Engines, cars, and one or more engines coupled to one or more cars.

Switch Providing Direct Access. A switch that if used by rolling equipment could permit the rolling equipment to couple to the equipment being protected.

Warning Signal. A white sign that reads, "OCCUPIED CAMP CAR" in black lettering. At night, an illuminated white light must also be used.

When occupied camp cars are placed on a track, the employee in charge of the camp car occupants (or a designated representative) must provide or request protection using one of the following methods:

A. On a Main Track

One of these two methods or a combination of these methods must be provided:

1. Each manually operated switch that provides direct access to that portion of the main track where occupied camp cars are located must be lined against movement to that track, secured with an effective locking device, and spiked or clamped. Warning signals must be displayed at or near each switch.

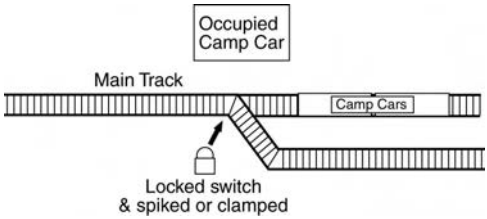


Diagram A

2. If remote control switches provide direct access to the main track where occupied camp cars are located, the control operator will line the switch against movement to that track and apply blocking devices to the control machine to prevent movement onto that track. The control operator must complete the above tasks before informing the employee requesting protection that protection is provided.

> **Blocking devices must not be removed until the employee in charge of the camp car occupant (or a designated representative) informs the control operator that protection is no longer required.**

a. Warning signals must be displayed at or near each remote control switch.

b. A derail capable of restricting access to the portion of main track where occupied camp cars are located must be placed at least 150 feet from the end of the occupied camp cars. The derail must be locked in derailing position with an effective locking device. Warning signals must be displayed at each derail.

c. The control operator must maintain for 15 days a written record of each notification. The record must contain the following information:

- Name and craft of employee requesting protection
- Identification of track protected
- Date and time employee in charge of camp car occupants is notified that protection was provided
- Date, time, name, and craft of employee authorizing removal of protection

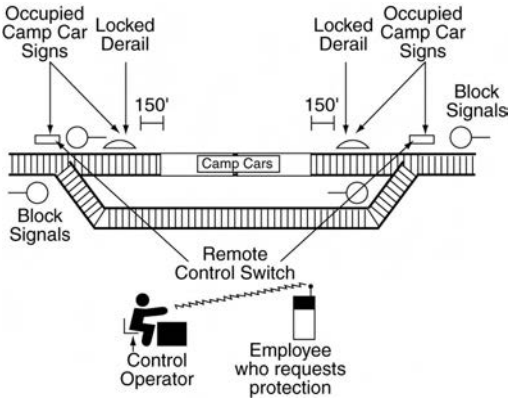


Diagram B

B. On Other Than a Main Track

One of these three methods of protection or a combination of these methods must be provided:

1. Each manually operated switch that provides direct access to the track where occupied camp cars are located must be lined against movement to that track and secured with an effective locking device. Warning signals must be displayed at or near each switch.

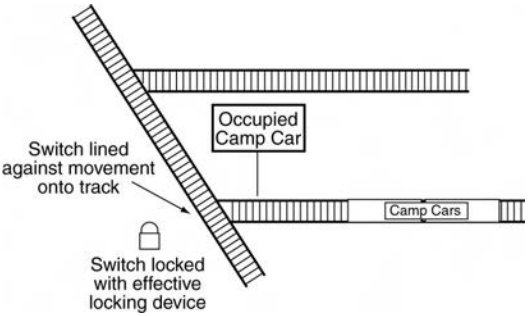


Diagram C

2. If remote control switches provide direct access to the track where occupied camp cars are located, the control operator will line the switch against movement to that track and apply blocking devices to the control machine to prevent movement onto that track. The control operator must complete the above tasks before informing the employee requesting protection that protection is provided.

> **Blocking devices must not be removed until the employee in charge of the camp car occupant (or a designated representative) informs the control operator that protection is no longer required.**

   a. Warning signals must be displayed at or near each remote control switch.

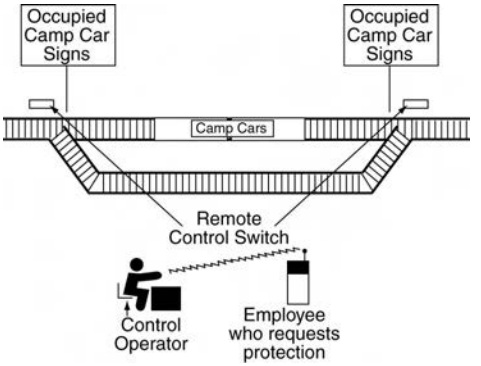


Diagram D

b. The control operator must maintain for 15 days a written record of each notification. The record must contain the following information:

- Name and craft of employee requesting protection
- Identification of track protected
- Date and time employee in charge of camp car occupants is notified that protection was provided
- Date, time, name, and craft of employee authorizing removal of protection

3. A derail capable of restricting access to that portion of the track where occupied camp cars are located will fulfill the requirements of protection when the derail is:

   a. Positioned at least 150 feet from the end of the occupied camp cars, **or**

   b. Positioned at least 50 feet from the end of the occupied camp cars where the maximum speed on that track is 5 MPH.

Warning signals must be displayed at each derail.

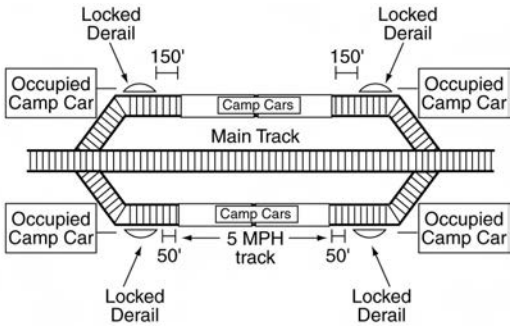


Diagram E

C. Warning Signals

When a warning signal is displayed to protect occupied camp cars:

1. Occupied camp cars must not be coupled to or moved.
2. Rolling equipment must not pass the warning signal.
3. Rolling equipment must not be placed on the same track in a manner that would block or reduce the view of the warning signal.

Appendix A

Types of On Track Protection

Types of Protection	Types of Track							
	Controlled Track		Non-Controlled Track		Interlocking		Hump Classification	
	Gang	Lone	Gang	Lone	Gang	Lone	Gang	Lone
Exclusive Use of Track	✔	✔			✔	✔		
Foul Time	✔	✔			✔	✔		
Inaccessible Track			✔	✔			✔	✔
Train Coordination	✔	✔	✔*	✔*	✔	✔	✔*	✔*
Individual Train Detection		✔		✔				
Watchman	✔		✔		✔		✔	

*= when there is only one train crew on a segment of track.

11. USING TOOLS

11. USING TOOLS

11.1 Introduction

This chapter gives safety rules for using hand tools and power tools.

HAND TOOLS

This section gives safety rules for inspecting, using, repairing, and storing hand tools.

11.2 Safety Precautions

Follow these precautions when using hand tools:

1. Use tools only for their intended purposes.
2. Do not modify tools or equipment unless you have been authorized to do so.
3. Do not manufacture a tool or safety device unless the proper authority has approved the design and specifications for the tool or device.
4. Before you use any tool or equipment, examine it for defects. Do not use a defective tool. Remove it from service immediately by tagging it with a warning tag (S 105).

   NOTE: Make sure tools do not have mushroomed heads. Replace splintered, loose, or broken handles before use.
5. Protect the point of a pencil, screwdriver, or other pointed tool when carrying it inside your clothing.
6. Do not use an open umbrella on or about tracks unless it is an umbrella approved for field welding.
7. Stay clear of a swinging tool and the object being driven.
8. Before you swing a tool, tell anyone nearby that you will swing the tool and make sure they are clear.
9. Do not strike a tool if the person holding it is directly in front of you.

10. Use a “soft” hammer or hardwood cushion when striking a tempered or case-hardened object.
11. Place ropes, cables, straps, belts, and other tackle where they will not contact the sharp edge of a material, tool, or corrosive material.
12. Brace yourself when using any tool or tackle, as follows:
    a. Place your feet firmly.
    b. Maintain a braced position. Do not overreach.
    c. Keep your hands and other body parts clear of pinch points.

11.2.1 Protecting Points of Tools

Follow these precautions to protect the points of tools:

1. When you are using a sharp or pointed tool, turn the edge away from your body, if possible.
2. Disassemble or protect sharp or pointed tools when you are transporting them on trains, equipment, or vehicles. Protect a tool by covering the point or edge with tape, a rag, or a cover designed for the tool.
3. Place the point or edge of a tool down when you are not using it.

11.2.2 Preventing Flying Material

Follow these precautions to prevent flying material:

1. Secure wire, strand, or stranded cable before cutting.
2. Cover a bolt head, rivet head, nut, or spall with broom, bagging, or other material before cutting.
3. Fasten barbed wire to a post near the stretcher or to another suitable point before stretching. Do not hold the wire while it is being stretched.

11.2.3 Lifting or Pulling With Tackle

Follow these precautions when lifting or pulling with rope or tackle:

1. Before pulling on rope, wire, cable, or other tackle:
   a. Have firm footing and be in a braced position.
   b. Secure the free end if possible.
   c. Move clear if it swings adversely.
2. While lifting or pulling, keep clear of the loop of cable, rope, chain, or other tackle.

11.3 Inspecting Tools

Follow these precautions when using tools:

1. Inspect a tool (including tackle, straps, ropes, and jacks) before you use it.
2. While you are using a tool, inspect it frequently enough to be sure it has not become broken, cracked, or defective during use.
3. If you find a defect, do not use the tool. Keep defective tools separate from serviceable tools.

11.4 Storing Tools

Follow these precautions when storing tools:

1. Place tools safely. Do not throw tools into storage.
2. Store tools neatly so you can safely remove them. Do not store tools on top of each other, since removing one tool could cause another tool to hit you.
3. Do not leave tools, material, refuse, or other items in a tunnel manhole or on the safety platform of a bridge or trestle.
4. Do not leave tools and materials unsecured on the top of scaffolds, ladders, cars, running boards, or cabs. Do not throw or drop tools from these places.

11.5 Repairing Tools

Follow these precautions when repairing tools:

1. Do not use string, wire, tape, or other unapproved materials or methods to repair tools, chains, cables, belts, straps, ropes, or other tackle.
2. Do not repair straps or belts.
3. Do not make welding repairs to sledge hammers, hand hammers, or any other tool or device.

11.6 Determining Hole Alignment

Do not use your finger to determine if a hole is in the proper alignment for inserting a rivet, bolt, pin, or other such object. Use a drift pin.

11.7 Using File

Follow these precautions when using a file:

1. Do not strike a file with a tool or other object.
2. Do not use a file as a wedge.
3. Do not use or strike a file without a handle.

11.8 Using Bar or Lever

To use a bar or lever to lift or move an object:

1. Place the bar or lever securely under or against the object.
2. Assume a braced position with firm footing. Grip the bar or lever securely.
3. Do not stand on, sit on, or straddle the bar or lever. Position yourself so that no parts of your body can get caught between the bar or lever and another object.
4. Move the bar or lever slowly and steadily.
5. Watch the base of the jack and contact points and, if necessary, readjust the jack or the object to keep a secure contact between the jack and the object.
6. Do not extend the bar to gain more leverage.

11.9 Using Handle Punch

Follow these precautions when using a handle punch:

1. Use a handle punch, cutter, or spike lifter only if it is equipped with head protection (such as shrink wrap).
2. Strike a handle punch with a sledge hammer.

11.10 Using Rail Fork

Follow these precautions when using a rail fork:

1. Before you apply the rail fork, free any rail or switch point that is embedded in dirt or ballast or is otherwise wedged.
2. If you doubt whether you can control the rail (due to the weight or situation of the rail), use more than one rail fork.
3. Assume a braced position and have a firm grip on the end of the handle.
4. If you are on track, keep your feet between the ties, if possible. Keep your feet clear of the backward movement of the rail.

   NOTE: If the rail is greasy or worn and the attempts to roll the rail with a rail fork are unsuccessful, the immediate supervisor can designate an experienced employee to roll the rail using one lining bar in a bolt hole.

11.11 Using Hand Adze

Follow these precautions when using a hand adze:

1. Make sure that the object to be adzed is secure. Do not use your foot to secure the object.
2. Remove nails, dirt, stones, and other obstructions from the object.
3. When possible, straddle the object. Be careful when swinging the adze between your legs.
4. Use a short stroke.

5. When practical, cut with the grain. When cutting against the grain or through a knot, control the blade to prevent it from glancing.
6. If you need to remove a large amount of material, notch and chip out pieces.
7. Keep the adze head free of wood chips.

11.12 Using Wrench

Follow these precautions when using a wrench:

1. Do not push on a wrench. Instead, pull the handle toward you.
2. Select the proper size and type of wrench to fit the object.
3. Do not use a shim to make the wrench fit.
4. Do not lengthen a wrench handle.
5. If you are using an adjustable wrench, position it so that the open end of the jaws is facing you. See Figure 11A below.

Figure 11A. Using an Adjustable Wrench

6. Maintain a braced position in case the wrench slips.
7. Do not immediately apply full force to the wrench. Instead, make sure the wrench has a secure grip and the stroke of the wrench will not harm you, then pull slowly and gradually to increase the force.

11.13 Using Hydraulic Rail Bender

Use a hydraulic rail bender only when it is equipped with a cable or other suitable means to prevent the jack from kicking out from between the bender arm and the rail.

11.14 Using Jack

This section gives safety rules for placing, operating, lowering, tripping, and storing a jack.

11.14.1 Safety Precautions

Follow these precautions when using a jack:

1. Keep your hands clear of the top, screw, rack, latch, socket, and other moving parts of the jack.
2. Do not position yourself or any part of your body under a load supported by a jack.

   EXCEPTION: You may go under raised equipment only if it is supported by approved stationary screw jacks, trestles, or other approved means.
3. When using a high jack, protect against approaching trains. Lay the jack down or ensure trains or equipment will not strike it.

11.14.2 Blocking Wheels of Object Being Raised

Before jacking up the end of a car, locomotive, hoisting equipment, motor truck, or other such equipment, block the wheels opposite the end where you are placing the jack. Block both sides of both wheels.

11.14.3 Placing Jack

Follow these precautions when placing a jack:

1. Use a jack with enough lifting capacity for the job. If you are unsure about the lifting capacity, ask your immediate supervisor.
2. Place the jack straight up and down, unless the jack is being used to line track. In that case, place the jack sideways.

3. Position the jack securely so that it will not slip at the base or at the object being lifted.
4. If the jack is not high enough to reach the load, or if the foundation is unstable, place suitable blocking under the jack as follows:
    a. For suitable blocking, use wood or other material that will not be crushed by the weight of the load. Stack them so they will not slip.
    b. If the load being lifted is metal, insert a piece of sound wood that is at least 1/4 inch thick and larger than the jack head between the jack head and the load.
    c. Do not use more than one wood block between the jack head and the load.
    d. If you must protect the jack from vibration (such as from passing equipment), have the blocking CANT slightly inward and evenly on both sides.

    EXCEPTION: If the jack is being used to line track, do not use wood or other blocking.
5. If the jack is equipped with a hose with quick disconnect fittings, apply a safety chain to the end of the hose connected to the jack and secure it to the jack to prevent whipping if the hose accidentally disconnects.

11.14.4 Operating Jack

Follow these precautions when operating a jack:

1. Use a handle designed for the type of jack you are using. Do not allow more than two people to operate the handle.
2. Fully insert the handle into the socket. Do not sit on, jump on, or straddle the handle. Remove the handle when the jack is not in use.
3. Stand at the side of the handle in a braced position and keep your head clear of the moving jack handle.
4. Push the handle down slowly and steadily until the top latch engages.

5. Before you release downward pressure on the handle, move your head clear of the upward movement of the handle.
6. Immediately raise the handle to the UP position and make sure that the bottom latch engages.
7. With the jack supporting the load, make sure the teeth on the pawl are fully engaged.
8. As soon as the load is raised, remove the handle from the jack socket, leaving the socket in the UP position.

A. Using Jacking Timber

Use jacking timber only when it is secured with a chain, brace, or other dependable method to keep it in place. Place one end of the jacking timber on the jack and the other end on the object to be moved.

B. Raising Bridge or Trestle

When raising a bridge or trestle, use the appropriately rated hydraulic or air jack.

C. Operating Bumper Jack

When operating a bumper jack:

1. Use a jack with enough lifting capacity for the job.
2. Be careful to place the jack according to manufacturer's specifications.
3. Set the brake on the vehicle being lifted.
4. Use the handle designed for the jack being used.
5. Block wheels away from the lift.
6. Insert the handle fully into the socket.
7. Do not place your head or body over the jack handle.
8. Remove the handle when the jack is not in use.

D. Jacking Up Vehicle

When jacking up a vehicle:

1. Do not occupy the vehicle supported by the jack.
2. Block wheels to prevent movement.
3. Do not place yourself under a vehicle supported by a jack unless the jack is blocked to support the vehicle in case the jack fails.

11.14.5 Lowering Jack

Before you lower a jack under a load, warn any persons who may be affected and make sure they are clear.

11.14.6 Tripping Jack

To trip a jack under a load, set the latch to TRIP, then fully insert the handle into the socket and pull on the handle at arm's length. Keep your face away from the handle.

11.14.7 Storing Jack

Follow these precautions when storing a jack:

1. When you are not using a big track jack, pole jack, or other top-heavy jack, lay it down in a horizontal position. Prevent dirt or objects from getting into the mechanism.
2. When you store a jack in its designated storage space, store it vertically with the rack or head lowered.
3. If the jack is equipped with control panels, store the panels in the proper cabinet on the truck. Make sure the cabinet is empty to protect the control panels from damage.

11.15 Driving Spike

This section gives safety rules for starting, driving, and pulling a spike.

11.15.1 Safety Precautions

Follow these precautions when driving a spike:

1. Allow only one person to drive a spike at a time.
2. Do not bend or straighten a spike or bolt by placing it on the rail or tie and striking it.
3. Do not use spike mauls to strike chisels, rock drills, punches, lining pins, or other spike mauls. Do not strike a claw bar with any tool.
4. When driving spikes with another employee, do not drive the same spike at the same time as the other employee.

11.15.2 Starting Spike

Follow these precautions when starting a spike by hand:

1. Remove any loose objects from the top of the tie plate and tie within one foot of the spike.
2. Hold the spike between your forefinger and thumb, with the palm of your hand up and the head of the spike at the heel of your palm.
3. Strike light blows until the spike is firmly seated and stable enough that it will not slip or jump when you strike hard blows.

11.15.3 Driving Spike

Follow these precautions when driving a spike:

1. Stand to the side of the rail while swinging.
2. Do not straddle a rail or swing the hammer over the top of the rail unless a rail, guardrail, or other obstruction prevents you from using the safer position.
3. If you must drive a spike by straddling the rail or swinging the hammer over the top of the rail, proceed as follows:
    a. Start the spike with a short-handled hammer.
    b. Use a power spike driver.

11.15.4 Pulling Spike

Follow these precautions when pulling a spike with a claw bar:

1. Place your hands on the claw bar so that they will not be caught on a platform, girder, rail, or other object when the bar moves downward.
2. Place the claw end of the bar firmly under the head of the spike.
3. If there is not enough clearance under the head of the spike for the claw, pry up the tie plate using the pinch end of the bar until the claw will fit under the head of the spike.
4. Make sure that all persons are clear of the claw bar.
5. Stand in a braced position. Begin with light pulls on the claw bar and gradually increase the force of each pull.
6. If a spike will not pry up easily, use a sledge and spike lifter. Place bagging or broom over the head of the spike to prevent flying material.
7. Do not start a spike by striking the claw bar.

11.16 Bumping Rail

Follow these precautions when bumping rail:

1. Spike both sides of the rail to at least every fifth tie.
2. Secure the joint bar you are bumping the rail against with at least two tightened bolts.
3. Place a joint bar or roller on a tie far enough from the end of the driver rail to prevent its end from sliding off.
4. Keep the suspended driver rail as low as possible. Make sure employees stand to the side of the rail.

11.17 Filling and Operating Switch Thawing Container

Follow these precautions when using a switch thawing container:

1. Close the control valve. Fill the can in a well-ventilated area, preferably outdoors at the job site.
2. Open the valve. Pour out some gasoline and form a small wetted area on the ground at least 10 feet away from any combustible material.

   CAUTION: Do not form the wetted area upwind of combustible material.
3. Close the valve. Set the container on the ground a safe distance from the wetted area. Ignite the wetted area with a fusee.

   CAUTION: Do not allow flames from the ignited area to come within 2 feet of the container.
4. Ignite the wetted wick from the burning wetted area.
5. Open the valve 1/4 turn and begin thawing operations. You may need to open the valve further.

   CAUTION: Do not open the valve all the way, since it results in excessive liquid flow.
6. After thawing operations are completed, close the valve. Burn off the remaining liquid in the pipe and nozzle before you store the container.
7. Do not transport a container over public roads unless it is completely empty.

POWER TOOLS AND MACHINERY

This section gives safety rules for inspecting, using, and maintaining power tools and machinery.

11.18 Safety Precautions

Follow these precautions when operating power tools, machines, and other powered equipment:

1. Do not operate power tools, machinery, cutting outfits, or welding outfits unless you are seated or standing at the place designated for the operator**.**
2. Do not operate such equipment unless you are:
   - Qualified and authorized, **or**
   - Qualifying and under the supervision of a qualified employee.

   NOTE: Qualified employees must carry their qualification cards at all times while on duty.
3. Keep tools and other materials clear of the moving parts of power tools or machinery.
4. Make sure set screws in revolving spindles or shafts are flush, countersunk, or protected by a collar.
5. Keep your hands, other body parts, and clothing away from moving belts, machinery, equipment, or pinch points.
6. Do not stand, climb on, or get between a guardrail and operating machinery.
7. Ensure safety devices and guards are in place and properly adjusted.

   EXCEPTION: You may work on, repair, or perform tests on power tools without the safety devices and guards in place if an immediate supervisor authorizes. Replace the guard immediately after the work is complete.
8. If a power tool or appliance has a control switch, move it to the OFF position before you connect or disconnect the tool.
9. Do not carry or lay down a portable power tool while it is operating. Hold the tool stationary until all moving parts have stopped.

   EXCEPTION: You may carry a weed or brush cutter while it is operating.
10. When a tool is not in use, place it so that the trigger, valve, or switch cannot be activated accidentally.

11. To avoid tripping hazards, be careful where you place hoses and power cords attached to power tools and appliances.
12. Hold the handle of a power tool firmly. Brace yourself and be prepared to move clear if the tool sticks or jams. Make sure that the material you are working on is secured and will not shift.
13. Before you operate a power tool, warn persons in the immediate area that you intend to use the tool and make sure they move to a safe position.

11.19 Inspecting Power Tools and Cords

Follow these precautions before using power tools and cords:

1. Inspect tools at the beginning of each tour. Do not operate tools that are unsafe.
2. Inspect tool cords and extension cords before use. Use electrical power tools that have grounded connections and are double insulated.
3. Use extension cords that match the rating and wiring of the tools for which they are used.
4. Make sure construction sites have ground fault circuit interrupters on all electrical outlets.

11.20 Using Device With Private Lock or Warning Tag

Do not operate a switch, valve, control, or other device protected with a private lock or warning tag (S 105) unless:

- The lock or tag may be removed safely, **and**
- The person who placed the lock or tag removes it.

11.21 Performing Maintenance

Follow the precautions below when performing maintenance on any of the following:

- Power tool

- Self-propelled equipment
- Hoisting equipment
- Any part of a movable bridge
- Locking device
- Power-operated equipment
- Machines
- Elevators

Performing maintenance on the above equipment consists of doing one or more of the following:

NOTE: Only a qualified and authorized person may perform maintenance on power equipment.

- Repairing, dismantling, or assembling it
- Adjusting, cleaning, or oiling it
- Removing obstructions from or applying approved devices (such as belt or chain) to it, including the equipment's associated parts, limit switch, safety device, or guard
- Changing blades or dies on a shear, punch, forging machine, bolt threader, or wood working machine
- Being positioned where any machine movement could catch any part of your body.

  NOTE: Secure or block any equipment, machine, elevator, or part of an elevator that may move.
- Being in or going through a confined space near a movable part or parts.
- Working on a belt, chain, conveyer, jack or tamper head, or other movable parts and their connections.

Follow these precautions before performing maintenance:

1. Make sure electrical switches and other controls are locked in the OFF position and a private lock or warning tag (S 105) is attached.

   EXCEPTION: If the tool's design permits you to safely clean, oil, or adjust the tool under power, you may do so.

2. Make sure the motor and all moving parts have stopped.
3. Secure all moving parts (such as jack or swing conveyor) and make sure they are on the ground. Set the air or hydraulic line valves to prevent movement, unless the design of the tool allows you to perform maintenance safely without setting the valve. See Figure 11B below.

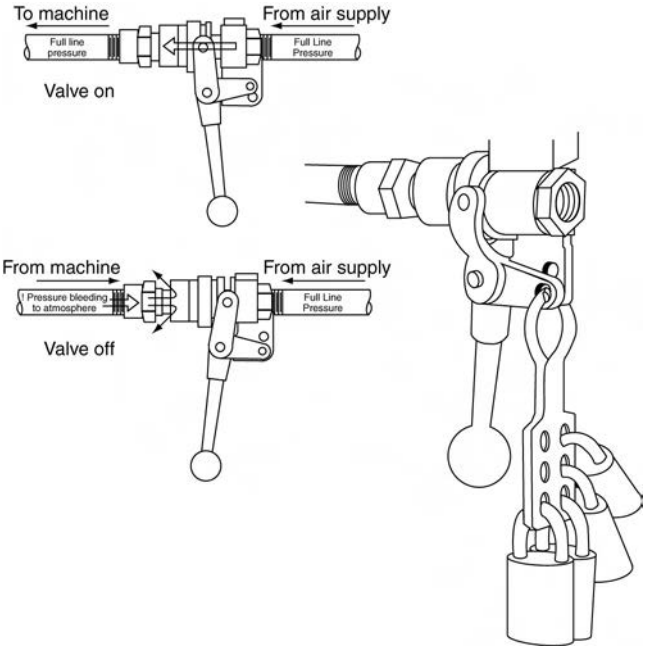


Figure 11B. Setting Air and Hydraulic Line Valves

4. Do not use your hand to remove obstructions or waste such as chips, cuttings, or scales from a tool or machine. Use a brush or other suitable item. To remove heavy shavings or borings, use a steel hook.
5. If you use compressed air to clean a power tool, make sure the pressure does not exceed 30 psi. Do not use compressed air to clean a person or clothing.

11.21.1 Working on High-Pressure Line or Apparatus

Before working on a high-pressure line or apparatus, follow these precautions:

1. Close the control valve.
2. Place a warning tag “Do Not Operate” (C&S 105) on the valve and lock it.
3. Release the remaining pressure.

11.22 Starting Gasoline Engine

Follow these precautions when starting a gasoline engine not equipped with a starter:

NOTE: Follow the manufacturer’s instructions if available.

1. If the engine has a clutch, make sure it is disengaged.
2. Place the equipment on a solid surface. Do not rest it against your body.
3. Use the “T” handle to pull the rope. Do not wrap the rope around your hand.

11.23 Using Rabbit/Capstan Rope

When using a Rabbit/Capstan rope or cable to move equipment:

1. Do not apply it to the equipment before movement time.
2. Between moves, do not leave the rope or cable across a highway crossing or walkway.

11.24 Using Grinding Wheel

Follow these precautions when using a power grinding wheel:

1. Use a face shield and primary eye protection.
2. Do not expose a stored or mounted grinding wheel to water, solvents, oil, dampness, or extreme temperatures.

3. Inspect and perform a ring test on a grinding wheel before you mount it. Dispose of defective or contaminated wheels.
4. Do not operate a grinding wheel at a speed higher than its rated capacity.
5. Do not operate a grinding wheel in a small space where it cannot revolve freely.
6. Do not operate a grinding wheel without the proper wheel guard. A proper wheel guard covers 3/4 of the wheel or stone.
7. Do not grind on the side of a grinding wheel unless it is designed for such use.
8. When using a bench or pedestal grinder, make sure the tool rest:
    - Is as near the center of the wheel as possible.
    - Covers the entire width of the wheel.
    - Is 1/8 inch or less from the wheel.

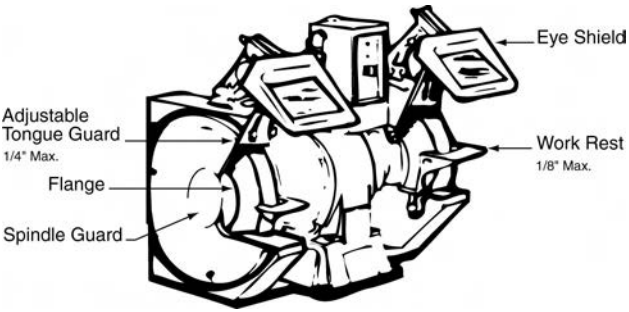


Figure 11C. Positioning the Tool Rest on a Grinding Wheel

11.25 Using Grinder

Follow these safety precautions when using grinders, including portable grinders:

1. Use a face shield and primary eye protection.
2. Do not use gloves while grinding.

3. Grind only on the grinding face of an emery wheel. Make sure the tool rest:
   - Is as near the center of the wheel as possible.
   - Covers the entire width of the wheel.
   - Is 1/8 inch or less from the wheel.
4. Avoid letting sparks fall on or near combustible material. Check your work area frequently for fires. Keep a fire extinguisher within reach.
5. Never use a portable grinder without a wheel guard.
6. When using a portable grinder, avoid rough usage that could result in a damaged wheel.
7. Operate a portable grinder as follows:
   a. Use face shield and primary eye protection.
   b. First, place the wheel against the material or object to be ground, then turn the switch or trigger ON.
   c. Turn the switch off if the work is complete or if you must remove the wheel from the material or object.
8. Never repair a grinder yourself. Only those who are authorized can make the repairs.
9. Make sure the grinding wheel being used matches the grinder's RPM requirements.

11.26 Using Table Saw (Rip Saw)

Follow these precautions when using a table saw:

1. Make sure that the spreader and kickback guard are in their proper positions.
2. Stand to the side of the material being sawed to prevent being struck by flying material.
3. Do not use your fingers to feed the trailing end of material into the saw. Use a forked push stick long enough to keep your fingers clear of the saw.

4. Using a push stick, remove loose or scrap pieces of material from the table as soon as the cut is completed.

11.27 Using Chain Saw

Follow these precautions when using a chain saw:

1. Follow the manufacturer's instructions for operating and adjusting the saw.
2. Inspect the saw before use. Make sure that:
   - Handles and guards, including the kickback guard, are in place and secure.
   - All controls are functioning properly.
   - The muffler is working properly.
3. Wear Kevlar chaps, a face shield, hearing protection, and primary eye protection.
4. Fuel the saw in a safe area away from possible fire sources.
5. Make sure you have secure footing as you operate the saw. Before you cut, clear away any brush that might interfere with your footing.
6. Start the saw according to manufacturer's instructions and as follows:
   a. Be at least 10 feet away from the fueling area.
   b. Rest the saw on a solid surface. Do not rest it against your body when starting it. See Figure 11D.

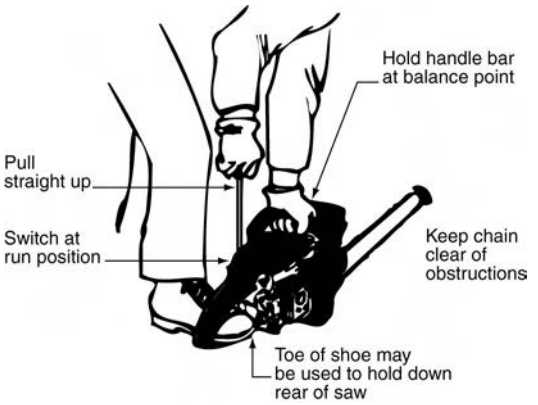


Figure 11D. Starting a Chain Saw

7. Hold the saw firmly with both hands. Do not cut in a direction or at a distance from your body that would require you to use an unsafe grip. Do not cut directly overhead.

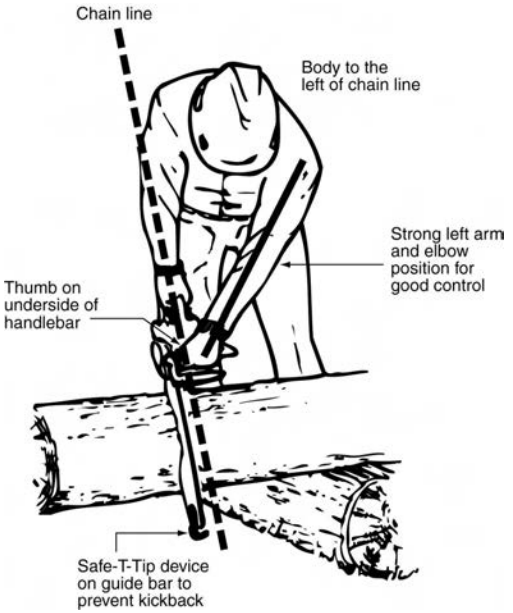


Figure 11E. Holding a Chain Saw

8. Avoid cutting through nails or other obstructions.
9. Shut off the saw before you carry it. Carry the saw by the top section of the handle with the cutter bar to the rear.

11.28 Using Hydraulic Spike Puller

Follow these precautions when using a hydraulic spike puller:

1. Do not put your fingers or other objects near the jaws while the tool is connected to a power source.
2. Do not use your fingers to dislodge a spike, even if the tool is not connected to a power source. The tool may still have pressure in it that could cause sudden movement of the jaws. Instead, follow the procedure in Rule 11.28.1 below.
3. Do not perform maintenance on a spike puller while it is connected to a power source.
4. Do not carry a spike puller by the pigtail hoses.
5. Be aware that a hydraulic spike puller presents an oil injection hazard. Oil injection is a condition in which the hydraulic oil is forced under the skin through pressure in the line. Always wear gloves and repair leaks immediately.

11.28.1 Dislodging Spike

Follow this procedure to remove a spike lodged on a hydraulic spike puller:

1. Move the lever to the OFF position.
2. Disconnect the hydraulic hoses.
3. Activate the trigger to relieve pressure.
4. Use vise grips or pliers to remove the spike. Do not use your hands.

11.29 Using Pneumatic Tool

Follow these precautions when using a pneumatic tool:

1. Before you connect or disconnect a pneumatic tool:

a. Make sure the control switch or valve at the source is OFF.

b. Close the air line valve at the source and release the pressure.

EXCEPTION: Do not complete the above steps if the supply hose is equipped to connect or disconnect under pressure.

c. Ensure a positive hose connection. Threads must match.

2. Secure the hose connections, if possible, to prevent the hoses from separating at the coupling.

3. Use hearing protection when operating pneumatic tools. Wear impact-resistant gloves to absorb vibration.

4. Before laying a tool down with the pressure on, remove the plunger, chisel, or other attachment, unless the tool has a hammer safety clip and coil spring retainer.

5. Use and hold a pneumatic hammer as follows:

   a. Do not point a pneumatic hammer toward anyone.

   b. When using a pneumatic hammer to rivet, use one equipped with a spring clip or other arrangement for holding the die or set.

   c. When holding a pneumatic hammer but not using it, place your thumb or finger under the trigger.

6. Use a pneumatic drill, reamer, tap, nut, or other such tool as follows:

   a. Lay down the tool only when it is not operating and only when the trigger valve or switch is shielded to prevent an accidental start.

   b. Firmly hold the tool and be prepared for a jerk if the tool sticks or jams.

   c. Shut off the power supply to apply the tool.

   d. If you must leave the tool unattended, shut off the power supply. Then remove the power cord from the socket or disconnect it from the motor.

7. When turning air into a hose, have the control valve of the throttle in the closed position.
8. Do not take hold of an auger, drill bit, reamer, or other such attachment to lift the handle, or help control the motor.

11.30 Operating Transporting Equipment

Follow these precautions when operating cars, trucks, conveyors, chutes, forklifts, or other transporting equipment:

1. Never use a conveyor, chute, or other such equipment as a step, walkway, or as a means of personal transportation.
2. Do not overload or unsafely load a car, truck, conveyor, or other transporting equipment.
3. Follow this procedure when operating a forklift:
    a. Wear seat belts at all times.
    b. Test the brakes, lights, horn, steering, and backup warning device before operating the forklift. Do not operate if items are defective.
    c. Space the forks to completely support the object being handled. Secure the load to the forks if necessary.
    d. Be aware of the ground or floor conditions and maintain at least 6 inches between the fork and the ground or floor.
    e. If you must leave the forklift unattended, place the forks on the ground or floor.

11.31 Operating Bar Shears

When operating bar shears, use tongs to hold material that is too short to be held down by the guard. Do not use your hand.

11.32 Operating Turntable Latch Lever

Follow these precautions when operating a turntable latch lever:

1. Have a secure handhold.

2. Have firm footing.
3. Be well braced.
4. Apply pressure gradually.

11.33 Using High-Pressure Spray Equipment

Follow these precautions when using high-pressure spray equipment:

1. Never point the spray gun at anyone or any part of your body.
2. Never put your hand or fingers over the spray tip.
3. Never try to stop leaks or deflect them with your hand or body.
4. Always have the tip guard in place when spraying.
5. Before cleaning or servicing equipment:
    - Disconnect the power source.
    - Carefully relieve pressure by triggering the spray gun.
    - Remove the spray tip for cleaning or flushing.
    - Open any drain or bleeder valve and leave it open during servicing.
6. Before each use, check the hoses for worn or damaged conditions and tighten all fluid connections securely. Replace any damaged hose. Never use tape or any other device to mend the hose.
7. Follow manufacturer's recommended practices.
8. Wear face shield, primary eye protection, rubber apron, and PVC gloves when operating the equipment.

11.34 Cutting Pipeline

Follow these precautions before cutting pipeline:

1. Secure the control valve in the closed position. Secure the valve with a private lock, if possible.
2. Place a warning tag (S 105) on the valve.
3. Release the remaining pressure in the pipe, tube, and hoses.

11.35 Cutting Trees

Follow these precautions when cutting or trimming a tree:

1. Look for wires running through or near the tree. Trim limbs so that they will not fall on wires.
2. Use a ladder or tree climber to get into or out of a tree.
3. When working in a tree, use a hand saw, trimmer, or other suitable tool instead of an ax or hatchet.
4. Ensure that the tree or limb will fall in the desired location by:
    a. Cutting a notch on the side of the tree or limb opposite the side being cut and using suitable wedges in the cut.
    b. Pulling the tree with a rope or other suitable means if necessary.
5. Make sure that all persons, including yourself, are clear of the falling tree or limb.

12. WORKING WITH ELECTRICAL APPARATUS

12. WORKING WITH ELECTRICAL APPARATUS

12.1 Introduction

When you are working with electrical apparatus, consider all circuits to be energized until you are certain that the power has been disconnected by approved means.

This chapter gives safety rules for using electrical protective equipment, working around specific voltages, performing specific electrical procedures, and working on specific electrical apparatus.

Also refer to Chapter 15, Working On Overhead Lines.

12.2 Safety Precautions

Follow these precautions when working with, on, or around electrical apparatus:

1. If you encounter a dangling wire, or any object that may be hanging from or in contact with electric circuits, equipment, or apparatus, keep your body and any item you are handling 25 feet or more from the object. Keep others away until qualified personnel are notified and take charge. Protect the object as follows:

    a. Protect the object with a barricade or other means until the employee responsible for its correction takes charge.

    NOTE: Qualified personnel are employees or contractors who have been qualified to work on electrical circuits.

    b. Inform your supervisor of the hazards encountered and the corrective actions taken.

EXCEPTION: Employees who have been authorized to work near electrical current and have been instructed by their supervisor on the precautions to use may approach the object.

2. Work on or about electrical circuits, wires, equipment, and other apparatus only if you are qualified to do so and you know the operating voltage of the equipment and electrical service being handled.
3. Follow the lockout tagout procedure. Refer to Rule 12.22.
4. Use only devices, appliances, and tools designed for working on electrical circuits.
5. Do not use the following items around energized wires, equipment, or apparatus:
    - Wire
    - Wet rope
    - Steel tape line
    - Linen tape line with metallic reinforcement
    - Metal ladders
6. Do not rely on insulation, weatherproofing, or a covering on electrical wires, equipment, or apparatus to protect you from electrical current.
7. Before you touch a structure that supports a circuit, examine the structure and ensure it is not energized by a broken insulator, a slack wire, or other such condition.
8. Do not store tools or material in electrical cases.
9. Do not allow water to contact an energized circuit, equipment, or apparatus.
10. Before you drill into a wall or partition, ensure that the drill will not contact electrical wires, equipment, or apparatus.

12.2.1 De-energizing Electrical Equipment

Follow these precautions before working on electrical apparatus:

1. Before you work on a transformer:
   a. Remove the primary fuses and open the secondary circuit.
   b. Before you open the secondary circuit, make sure the current transformer has been de-energized.
2. Before you work on electrically operated equipment or apparatus, open the control cut-out switch.
3. Before you work on a broken conductor normally energized at 600 or more volts, place grounding devices on both sides of the break.
4. Before you work on insulated power cable normally energized at 2,500 or more volts, follow these precautions:
   a. De-energize the circuit.
   b. Ground the circuit by switches or other approved method at the nearest terminal on each side of the work.
   c. Use a detecting device at the point where you will do the work to ensure that you have selected the de-energized cable.
5. Before you work on a catenary section break, place grounding devices on both sides of the break.
6. Before you work on a static condenser or capacitor, make sure it is discharged.

12.2.2 Working in Electrical Storm

If you are working in an electrical storm, apply proper grounds to aerial line wires, aerial cables, and associated apparatus before you work on them.

12.2.3 Extinguishing Fire Near Energized Circuits

Follow this procedure to extinguish a fire near energized electrical circuits, equipment, or apparatus:

1. Notify emergency personnel (Fire Department).
2. Keep clear until all circuits have been de-energized and grounded.
3. Keep clear of any area where wires, cables, apparatus, or other items might fall.
4. Use sand or a proper extinguisher to put out the fire.
5. When using chemical or other fume-producing fire fighting, have enough fresh air circulation. Keep clear of a confined space.

   CAUTION: Do not use water to put out a fire near energized circuits. Never direct hose water stream close to energized circuits, equipment, or apparatus.

12.3 Inspecting Electrical Equipment

Before you use electrical equipment, inspect all tools, ladders, and protective barriers according to the procedure in Rule 11.3, Inspecting Tools.

12.4 Maintaining Clearance From Energized Circuits

Follow these precautions to maintain clearance from energized circuits when working on electrical apparatus:

1. Position yourself away from an insulator on a nearby energized wire, apparatus, or equipment. Do not touch the insulator with your body, a tool, or another item.
2. Use tape, rope, or a barricade to define the limits of clearance protection for safely working on or near electrical apparatus.

USING ELECTRICAL PROTECTIVE EQUIPMENT

The term *electrical protective equipment* refers to the specific kinds of personal protective equipment worn and used around energized circuits to protect you from electrical current. Electrical protective equipment includes electrical protective gloves, rubber gloves, rubber sleeves, rubber line hose, and rubber blankets.

This section gives safety rules for inspecting, using, and storing electrical protective equipment.

12.5 Safety Precautions

Follow these precautions when using and storing electrical protective equipment:

1. Inspect electrical protective equipment before you use it. If you find any defects, do not use the equipment. Keep defective equipment separate from serviceable equipment.
2. Wear electrical protective gloves and sleeves when working on installations near energized circuits.
3. As you approach an installation, cover all equipment, tools, and parts of your body that could contact an energized circuit, including circuits within reaching and falling distance.
4. Do not store rubber goods if they are wet or dirty. Wash them with a mild detergent, rinse thoroughly, and wipe dry before you store them.

NOTE: To wash the inside of rubber gloves, wear the gloves inside out and wash your hands.

5. Store rubber goods in a cool dark place (preferably near 60° F).

12.6 Electrical Protective Gloves

The electrical protective glove consists of a fabric liner, a flexible rubber glove with a gauntlet, and an outer leather glove to protect the rubber glove from punctures and abrasion.

NOTE: Also refer to Rule 12.7, Rubber Gloves.

12.6.1 Inspecting Electrical Protective Gloves

Refer to Rule 12.7.1, Inspecting Rubber Gloves.

12.6.2 Using Electrical Protective Gloves

Follow these precautions when using electrical protective gloves:

1. Do not use electrical protective leather gloves for any other purpose.
2. Do not use a leather glove as part of an electrical protective glove if it is worn, thin, torn, or hardened from being wet.
3. If a leather glove becomes wet, remove it and use another. Do not use the leather glove until it is thoroughly dry.

12.6.3 Storing Electrical Protective Gloves

Follow this procedure to store electrical protective gloves:

1. Wipe the gloves clean.
2. Store the gloves unfolded in their original container or bag in a place where they will not be damaged or exposed to sunlight, oil, or heat. Place the fabric gloves between the rubber gloves.
3. Do not pile other items on top of stored electrical protective gloves; the items could puncture or damage the gloves.

12.7 Rubber Gloves

Each pair of rubber gloves in stock will be in a sealed package with the inspection date, voltage proof test, and size of gloves. Make sure the inspection date is current.

12.7.1 Inspecting Rubber Gloves

Follow this procedure to inspect a rubber glove:

1. Press the gauntlet closed on a flat surface.
2. Roll the gauntlet toward the palm of the glove to inflate the glove.
3. Examine the glove for defects.

   NOTE: "Defect" refers to a hole, tear, or other breach in the integrity of the rubber.
4. Squeeze the glove. If the glove loses air, the glove is defective and must not be used.
5. Cut open defective gloves from finger to gauntlet and return them to your supervisor.

A. Performing Electrical Test

At least every 120 days, have an outside contractor perform an electrical test on all rubber gloves used as part of an electrical protective glove. Make sure the gloves are tested according to the USA Standard Specifications for Rubber Protective Equipment for Electrical Workers.

If a glove passes the electrical test, mark the gauntlet with the following information:

- "10 KV" or "20 KV," according to the results of the contractor's test
- The name of the person or contractor who performed the test
- The date of the test
- The size of the glove
- "Maximum time until retest 120 days"

12.7.2 Using Rubber Gloves

Follow these precautions when using rubber gloves:

1. Have clean hands when you put on rubber gloves. Do not use rubber gloves without protective leather gloves.
2. Do not use rubber gloves that are not marked with the results of an electrical test.
3. If you believe that a pair of rubber gloves is unsafe, request a new pair.

   NOTE: Old rubber gloves must pass the electrical test before they can be used again.

12.7.3 Storing Rubber Gloves

Follow these precautions when storing rubber gloves:

1. Store each new pair of rubber gloves that passes the electrical test in a sealed package labeled with the same information as the gauntlet (see Rule 12.7).
2. Store used rubber gloves with electrical protective gloves. See Rule 12.6.3.

12.8 Rubber Sleeves

12.8.1 Inspecting Rubber Sleeves

To inspect a rubber sleeve, stretch or roll the rubber between your fingers and examine the inside and outside for defects.

12.8.2 Using Rubber Sleeves

Have an electrical test performed periodically on all rubber sleeves according to the manufacturer's instructions.

12.8.3 Storing Rubber Sleeves

Store rubber sleeves flat with inserts, lengthwise in a sleeve roll-up, or lengthwise in a tube-shaped bag.

12.9 Rubber Line Hose

12.9.1 Inspecting Rubber Line Hose

To inspect a rubber line hose, spread the hose open and put a sharp downward bend in each section of the hose. Examine the inside and outside of the hose for defects.

12.9.2 Using Rubber Line Hose

Raise and lower rubber line hose in the proper hose bag.

12.9.3 Storing Rubber Line Hose

Store rubber line hose straight, not curved.

12.10 Rubber Blankets

12.10.1 Inspecting Rubber Blankets

Follow this procedure to inspect a rubber blanket:

1. Roll the blanket while examining the outer curved surface for defects.
2. Unroll the blanket. Starting from an adjacent edge, roll the blanket again and examine the outer curved surface for defects.
3. Unroll the blanket and turn it over. Repeat steps 1 and 2 for the other side.

12.10.2 Using Rubber Blankets

If you are standing on the ground near a ground rod where connections have been made for personal protective grounds, stand on a rubber blanket to protect yourself from current flowing through the ground.

12.10.3 Storing Rubber Blankets

Store a rubber blanket in a canvas roll-up, or roll the blanket and place it in a fiber or metal canister.

WORKING AROUND SPECIFIC VOLTAGES

This section lists the electrical protective equipment you should wear and the safe distances you should maintain when working around specific voltages.

12.11 Protection for Specific Voltages

Use the protection in the table below when you are working on electrical circuits, apparatus, or equipment energized at these specific voltages:

ELECTRICAL PROTECTIVE EQUIPMENT	
Voltage	**Protection**
At least 175 volts but less than 600 volts	Wear electrical protective gloves. Use a fuse puller or hot stick.
At least 600 volts but less than 2,500 volts	De-energize circuits, ground, and work between grounds. If this is impractical, obtain permission of the supervisor, or the Foreman-Electrician if that person is in charge, and use electrical protective gloves, sleeves, and blankets.
At least 2,500 volts but less than 70,000 volts	De-energize circuits, ground, and work between grounds unless you are protected by electrical protective gloves, sleeves, and blankets.
70,000 volts or more	De-energize and ground the pole, all circuits on the same pole structure, and neutral and static wires within 10 feet before you work on them. **EXCEPTION: If the structure provides at least 10 feet of clearance from all energized circuits, you do not need to de-energize.**

12.12 Safe Distances

Unless protected by sleeves and blankets, maintain the safe distances in the table below when you are working on electrical circuits, apparatus, or equipment energized at these specific voltages:

NOTE: These distances apply to your body, tools, and material being handled.

SAFE DISTANCES	
Voltage	**Safe Distance**
Less than 300 volts	Avoid contact
At least 300 volts but less than 750 volts	1 foot clearance
At least 750 volts but less than 2,500 volts	2 feet clearance
At least 2,500 volts but less than 37,000 volts	3 feet clearance
37,000 volts or more	10 feet clearance

PERFORMING SPECIFIC ELECTRICAL PROCEDURES

This section gives safety rules for performing specific electrical procedures, including grounding a circuit, applying and removing a grounding device, connecting a live battery to a discharged battery, installing an insulated line or insulator cover, removing and replacing a fuse, operating a hook-stick high tension disconnecting switch, operating a circuit breaker, stringing wire or messenger, and making a dielectric or load test.

12.13 Grounding Circuit

Follow this procedure to ground a circuit:

1. Confirm that the circuit is de-energized with a device intended and rated for this purpose.
2. Place the grounding device.

12.14 Applying and Removing Grounding Device

12.14.1 Applying Grounding Device

Follow this procedure to apply a grounding device:

1. Do not ground an energized circuit.
2. Wear approved safety glasses, face shield, and clothing.
3. Keep as far as practical from the energized circuit. If possible, keep below and upwind of the circuit to stay clear of any resulting arc.
4. Once the circuit is de-energized, secure the grounding device to the ground connection.
5. Connect the other end of the grounding device to the line, equipment, or apparatus.

12.14.2 Removing Grounding Device

Follow this procedure to remove a grounding device:

1. Disconnect the grounding device from the line, equipment, or apparatus.
2. Remove the grounding device from the ground connection.

12.15 Connecting Live Battery to Discharged Battery

Follow these precautions when connecting a live battery to a discharged battery:

1. Extinguish all open flames and cigarettes near the batteries.
2. Make sure that the polarity is proper.
3. Connect to the discharged battery, then to the live battery.

12.16 Installing Insulated Line or Insulator Cover

Follow these precautions when installing an insulated line:

1. Make sure that the insulated line or insulator cover is approved for 15 KV or above.
2. Apply the insulated line or insulator cover with approved hot line tools.
3. Stay at least 3 feet away from the line until the insulated line or insulator cover is installed.
4. After the line is covered, stay at least 6 inches away from the line.

12.17 Removing and Replacing Fuse

Follow these precautions when removing or replacing a fuse on an energized circuit of 175 volts or more:

1. Wear electrical protective gloves.
2. Use a fuse puller or hot stick.
3. Make sure that the replacement fuse is rated for the correct voltage, continuous current, and interrupting current.
4. Do not use anything in place of an electrical fuse.

12.18 Operating Hook-stick High Tension Disconnecting Switch

Follow these precautions when operating a hook-stick high tension disconnecting switch:

1. Wear electrical protective gloves.
2. Use the proper insulated switch pole.
3. Hold the switch pole at the end of the pole so that the full length of the pole is between your hands and the circuit.

12.19 Operating Circuit Breaker

Follow these precautions when operating a circuit breaker:

1. Open the circuit breaker before you open or close the disconnect switch in line with the circuit breaker.

   EXCEPTION: If the circuit breaker is nontrip, you may leave it closed when closing the disconnect switch.

2. When you are closing an energized circuit breaker by hand, wear electrical protective gloves and close the contacts as quickly as possible.
3. Do not operate a circuit breaker by hand if the circuit breaker is not equipped with a platform and the lever will travel beyond your reach.
4. When operating an open-type switch or circuit breaker, keep your face turned away from it, and stand at arm's length. This protects you from a potential flash as the contact is broken.
5. Wear eye protection.

12.19.1 Working Near Control Board

Follow these precautions when working near a control board equipped with an electro-static ground detector and energized with high voltage:

1. Always keep your body at a safe distance.
2. Do not allow tools and other materials to contact the control board.

12.20 Stringing Wire or Messenger

Follow these precautions when you are stringing or removing wire or messenger near a high-voltage circuit:

1. De-energize and ground the circuit.
2. Apply grounds to the wire or messenger.

12.21 Making Dielectric or Load Test

Follow these precautions before making a dielectric or load test:

1. See that the test ground lead is solidly grounded.
2. Surround the unit, locomotive, or other equipment with rope or tape that is at least 3 feet from the equipment and place caution signs properly.
3. Make sure all persons not involved with the test are in the clear.
4. Alert all persons near the roped-off test area that a test is in progress.

WORKING ON SPECIFIC ELECTRICAL APPARATUS

This section gives safety rules for working on specific electrical apparatus, including a circuit that supplies energy to equipment and an insulated power cable.

12.22 Working on Circuit That Supplies Energy to Equipment

Follow these precautions when working on electrical, hydraulic, or other circuits that supply energy to equipment or other devices:

1. Notify the operator of the device that the power circuit will be de-energized.
2. De-energize the circuit.
3. Attach a warning tag (S 105) to each switch. As each switch is opened, lock it with a private lock. Ensure that the lock is effective.
4. Make sure that each warning tag is removed or that only the employee who applied the warning tag operates each switch. Follow these rules:
    a. If the employee who applied the warning tag is not available, the employee's supervisor may have the warning

tag removed to put other employees on the job. These employees then place their warning tags as in step 3.

b. If the circuit must remain de-energized past the hours of duty of the person who applied the original warning tag, the relieving employee applies his or her own warning tag as soon as the original tag is removed.

c. If the person who applied the warning tag is not relieved by another employee, the warning tag remains on the switch until the person's next tour of duty.

5. When work on the circuit is completed, make sure the machinery is in proper shape for operation.
6. Remove all warning tags.
7. Re-energize the switches and circuits.

12.23 Working on Insulated Power Cable

Follow these precautions before you work on an insulated power cable:

1. Use a detecting device to ensure that you have selected the de-energized cable. Make sure that the detecting device is reading the "hot" wire in the cable and not the ground or neutral.
2. Attach the detecting device at the point where the work will be done.

13. WELDING AND CUTTING

13. WELDING AND CUTTING

13.1 Introduction

This chapter gives safety rules for welding and cutting, including inspecting regulators and gauges, opening cylinder valves, thermite (flash) welding, finishing welding and cutting operations, and storing cylinders.

13.2 Safety Precautions

Follow these precautions when and cutting:

1. Weld or cut only if you are qualified to do so.

   NOTE: Qualified persons must carry a qualification card while on duty.

2. Keep your head out of the weld plume, if possible.
3. Take precautions to prevent burning your clothing, safety harness, or lanyard with the torch flame or sparks. Always check your work area for fires and keep a fire extinguisher within reach.
4. Do not leave a lit cutting torch unattended.
5. Close the torch valve before laying it down, climbing, or passing it to another person.
6. Keep a gas cutting or welding outfit clear of a load handled by hoisting equipment.
7. Do not use compressed gases to cool yourself or others.

13.2.1 Cylinder Precautions

Follow these cylinder safety precautions:

1. If a cylinder is leaking, move it into the open air. Make sure the cylinder is clear of flammable material and anything that may cause it to ignite.

2. Secure compressed gas cylinders in an upright position at all times except when hoisting or carrying them.
3. Keep cylinders and welding and cutting equipment away from the following hazards:
    - Oil
    - Grease
    - Fuel supply
4. Keep cylinders a safe distance from:
    - Welding and cutting operations
    - Electrical circuits

13.2.2 Moving Cylinders

Follow these precautions when moving cylinders:

1. When lifting or transporting pressurized cylinders with hoisting equipment, secure the cylinders to a cradle or platform designed for hoisting.
2. Move or transport cylinders with valve protecting caps in place.

13.3 Inspecting Welding Equipment

Follow these precautions when inspecting welding equipment:

1. Inspect regulators and gauges every 12 months. Mark the date of inspection on a small tag posted on the inside of the regulator lens face.
2. Make sure that flash arrestors are used on the regulators.
3. Inspect all hoses and couplings before using them. Replace defective parts; do not use them.

13.4 Opening Cylinder Valves

Follow these precautions when opening cylinder valves:

1. Do not handle the valve on an oxygen cylinder with oily hands or gloves.

2. Before you release oxygen or acetylene into a regulator, ensure the low pressure adjustment screw is out or in an OFF position.
3. Open the valve on an oxygen cylinder all the way to prevent leaking at the valve stem.
4. Do not open the valve on an acetylene cylinder more than 1-1/2 turns. Do not use an acetylene cylinder with the valve open more than 1-1/2 turns.
5. When using an acetylene cylinder, leave the tank key on the cylinder valve in case you must shut the valve in an emergency.

13.5 Lighting and Using Torch

Follow these precautions when lighting and using the torch:

1. Purge the oxygen and acetylene lines for a few seconds before you light the torch.
2. Use only an approved flint lighter to ignite an acetylene torch "gas" mixture.
3. Keep a lighted torch within your own sight at all times.
4. Do not attempt to stop the flow of oxygen or acetylene by crimping the hose. Crimping allows the oxygen or acetylene from the opposite hose to travel through the torch mixing head into the crimped hose, causing a backfire in the hose.
5. Make sure that check valves are used on the torch.
6. Do not use a torch to light a fire, other torch, cigarette, or any other item.
7. Do not use the torch body of the oxygen-acetylene torch to unreel the hose. Use the hose or hose reel stop on the oxygen-acetylene hose.
8. Before operating a torch on or near a receptacle:
    a. Make sure no gas will be generated by oil, grease, or other combustibles.
    b. Make sure the receptacle is well contacted.
    c. Make sure the fumes from the torch will not accumulate.

9. Do not ream, drill, or alter burning tips to enlarge holes.

13.5.1 Storing Torches

Follow these precautions when hanging or storing torches:

1. Do not hang or store oxygen-acetylene torches by their operating valves or levers.
2. Do not lay an oxygen-acetylene torch across a box or other container.
3. Do not hang a torch inside a box or other container.

13.6 Welding, Cutting, and Heating

Follow these precautions when performing welding, cutting, or heating operations:

1. Perform a welding, cutting, or heating operation on any of the following objects or a similar object only if it is properly vented or drilled to allow gas, steam, and hot air to escape:
   - Container
   - Cored casting
   - Pipe
   - Plugged hole
2. Before you cut through anything, make sure that there is no person on the other side. Make sure no other conditions could harm the operator.
3. Do not weld with defective equipment or hose. Cut out bad sections of hose and repair with standard hose connections.
4. When cutting or welding, keep your hose in a safe position at all times. Position it so:
   - Sparks or molten metal cannot fall on it.
   - Equipment and vehicles will not run over it.
5. Be careful when handling coiled MIG welding wire. Sharp edges of inner back-up metal core and banding material can cut you.

6. Do not leave electrodes in welding tongs when not actively welding. Never use electrodes for any other purpose.

13.6.1 Personal Protective Equipment

When engaged in gas or electric cutting, welding, or heating operations, wear the appropriate personal protective equipment:

1. Wear the prescribed cutting or welding goggles, even if you are only observing the work.
2. When electric cutting, wear the full welding helmet.
3. When burning and gas cutting, wear a full face shield.
4. When acetylene or electric welding or cutting, or exposed to the sparks, wear prescribed ear protection or lambs wool to prevent burns to your inner ear.

   CAUTION: Do not wear synthetic material (polyester, nylon, etc.) while burning. These materials can easily catch fire and severely burn you. Wear only approved welding/burning clothes—burning/welding jacket and pants, proper eye protection, and welding gloves.

13.7 Thermite (Flash) Welding

Follow these precautions when thermite (flash) welding:

1. Make sure that molds or other items are free of defects. Promptly replace any items that are damaged or unsafe to use.
2. Before you place the contents of charge into the crucible, make sure that molds, crucibles, and other items are dry and free of grease or oil.
3. Place the entire contents of charge into the crucible.
4. Before you ignite the powder, place the cap on the crucible and position yourself to avoid injury from gases or molten metal that may be discharged from the crucible or mold.
5. Stand upwind of and at least 10 feet from the crucible during the reaction.

   EXCEPTION: This does not apply to rail bonding.

6. Do not try to stop a leak. Stay away from the crucible.
7. Before you open the cover, allow enough time for the metal to solidify after the weld is made.
8. Do not dispose of hot slag from the pan in a puddle or wet area.

13.8 Completing Welding and Cutting Operations

Follow this procedure when completing welding or cutting, or before moving portable welding or cutting outfits:

1. Close the cylinder valves.
2. Open the torch valves alternately to relieve pressure on the gauges.
3. Release the regulator valve screws and close the torch valves.
4. At the end of your tour of duty, disconnect burning outfits from the manifold pipe and securely replace caps.

13.9 Storing Cylinders

Follow these precautions when storing compressed gas cylinders:

1. Properly shut down and secure gas cylinders when not in use. At the end of each work shift, break down burning outfits and properly store them.
2. Do not operate highway vehicles on public highways with regulators attached to the cylinders.
3. If a cylinder has a valve protecting cap, replace the cap as soon as the regulator is removed. Store cylinders with the valve protecting caps in place.
4. Store and secure cylinders in an upright position.
5. Keep oxygen cylinders at least 20 feet from acetylene cylinders, unless they are separated by a firewall.

14. HOISTING EQUIPMENT

14. HOISTING EQUIPMENT

14.1 Introduction

Working with hoisting equipment requires careful attention and common sense. An experienced operator who can anticipate how particular movement of the controls will affect the load should operate hoisting equipment.

This chapter gives safety rules for using hoisting equipment, including safety precautions for operating, working with, and working near hoisting equipment; using hand signals; determining safe weights for lifting; and using grapple buckets.

14.2 Safety Precautions

14.2.1 Operating Hoisting Equipment

Follow these precautions when operating hoisting equipment:

1. Before operating or moving hoisting equipment, make sure that:
   - Persons will not be caught by any part of the load or equipment.
   - The boom or load will not be carried over any person.
2. Keep hoisting equipment at least 12 feet from wires unless the wires have been de-energized and visibly grounded at the point of work.
3. Do not leave the controls of hoisting equipment unattended unless the load, bucket, magnet, or other heavy attachment is resting on the ground or in a car.
4. Do not stop a suspended load over a gas cutting or welding outfit or over gas cylinder storage areas.
5. Keep cab doors secured in an open or closed position.

6. Use only an approved wheel set lifting device to lift mounted wheels.
7. When operating block truck-mounted lifting equipment, never operate the boom on the same side as the load being lifted.

14.2.2 Working With or Near Hoisting Equipment

Follow these precautions when working with or near hoisting equipment:

1. Keep clear of suspended loads. Stand clear while tension is applied (by either a pull or a lift) to a cable, chain, or other tackle.
2. When a load is being lifted or pulled, keep clear of the loop of cable, rope, chain, or other tackle.
3. Take hold of a potential pinch point (such as a cable, sheave, or boom) only after protection has been provided.
4. Do not ride or hang on tongs, slings, hooks, downhaul weights, or the load of hoisting equipment.

14.2.3 Keeping Clear of Hoisting Equipment

Follow these precautions to keep clear of hoisting equipment:

1. Do not walk or stand under a boom unless you need to hook or unhook the load.
2. Stay clear of the boom, the swing of the cab, and the load, bucket, or magnet being handled by hoisting equipment.
3. Keep clear of a car, trailer, or vehicle where a bucket or magnet is being operated.
4. Keep personal belongings, tools, oil cans, and other objects clear of hoisting equipment. Keep the items in a toolbox.
5. Use a hand line.
6. Do not go between an object and the load being handled.
7. When you are riding an idler car or other equipment, keep clear of the limits of the boom.

14.3 Inspecting Hoisting Equipment

Inspect hoisting equipment as follows:

1. At the beginning of each tour of duty, inspect ropes, chains, cables, sheaves, hooks, slings, and other attachments and safety devices before using them.
2. Inspect the boom, hoist, or other cable by unwinding as much of the cable as possible from the drum.
3. Perform monthly written inspections on hoisting equipment.

14.3.1 Repairing Hoisting Equipment

Follow these precautions before working on or repairing any part of overhead or gantry hoisting equipment:

1. Notify all operators and other employees involved.
2. Place rail stops in protecting position on runway rails.
3. Make sure all equipment has been properly locked and tagged out.

14.3.2 Repairing Chain or Cable

Only authorized employees may repair, splice, or shorten chain or cable as follows:

1. Use the approved method.
2. Do not use a bolt, wire, nail, or other such object in the link.
3. Do not tie a knot or twist the chain or cable.
4. Never burn cables to shorten them. Use only approved clamps.

14.4 Determining Safe Weights for Lifting

See the charts that list weights for lifting C&S material, miscellaneous B&B material, and Track material before you attempt a lift. Read these charts to make sure the load can be lifted safely.

14.5 Conducting Hoisting Operation

This section gives safety rules for conducting a hoisting operation, including designating the signalman, using hand signals, testing the hitch and brakes, hooking on the load, and keeping the load under control.

14.5.1 Designating Signalman

Before beginning a hoisting operation, designate one person to give the signals.

1. Make sure the person giving the signals is the one designated and qualified to do so.
2. Make sure all employees involved in the hoisting operation know whom the designated signalman is.
3. Accept standard signals only from the designated person. Obey emergency stop signals from anyone.
4. When two cranes or derricks are lifting the same load, designate one qualified person to direct the movement of both.

14.5.2 Using Hand Signals

Use standard hand signals to direct the movement of hoisting equipment. See Figure 14A.

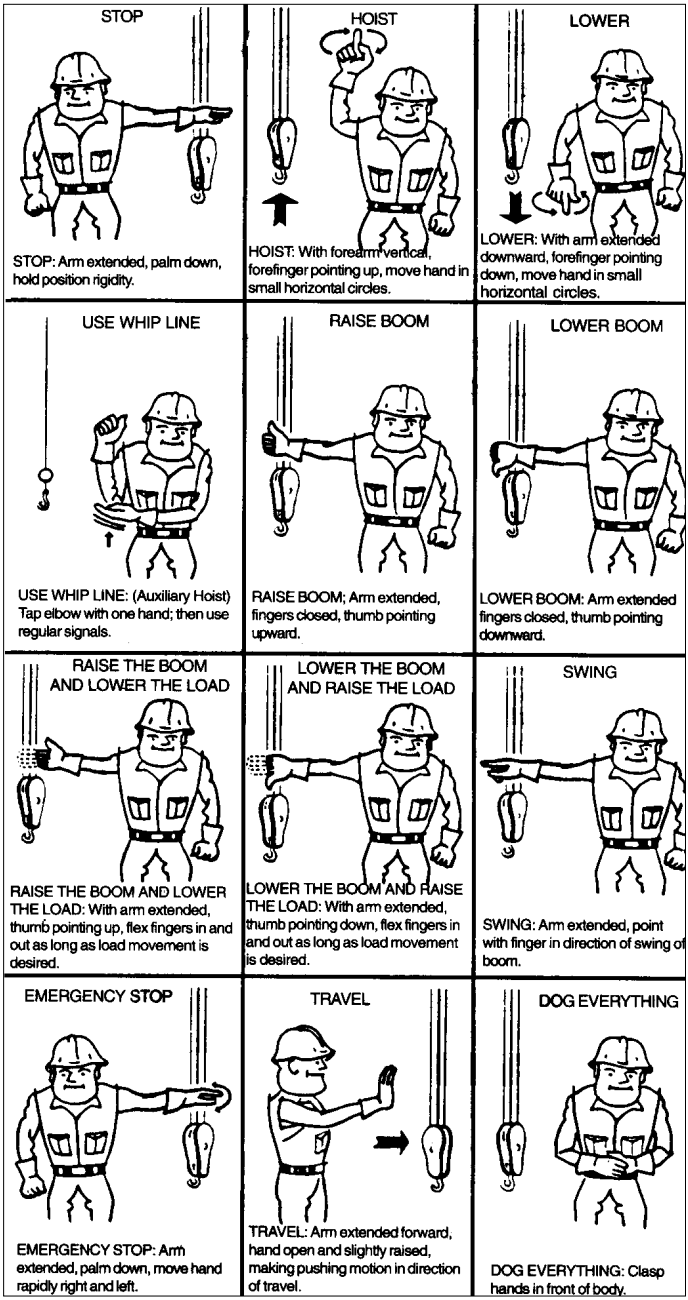


Figure 14A. Standard Hand Signals

14.5.3 Testing Hitch and Brakes

Follow this procedure to test the hitch and brakes:

1. Before lifting the load, carefully take the slack out of the load line. Make sure the hitch is secure and centered.
2. Raise the load a few inches. Apply the brakes and make sure they hold the load. Make sure the outriggers support the crane.
3. If the brakes do not function properly, slowly lower the load. Do not use the hoist until the brakes are repaired.
4. Note any defects and report them to your immediate supervisor.
5. Never operate equipment that looks unsafe.

14.5.4 Hooking on and Hoisting Load

Follow this procedure to hook on and hoist the load:

1. Do not attach the hoist block directly to the object to be lifted or moved. Use an approved chain, cable, or other lifting accessory.
2. Make sure the sling or accessory is the proper size, capacity, and design. When in doubt consult your immediate supervisor.
3. Be sure to hitch the load at the designated place. If you cannot, hitch it where it will prevent the load from tipping when being hoisted.
4. Be sure the hitch is secure before hoisting the load.
5. If an empty chain or cable sling is hanging from hoisting equipment, place the end of the sling into the ring attachment or block hook before hoisting.
6. When hoisting the load, first hoist it just clear of the support and stop. Have the person who hooked on the load make sure of each of the following:

   - The sling is even.
   - The chain hoisting accessory is not twisted.
   - The load rides level.

   NOTE: If the load does not look secure or seem to be riding level, lower the load and take off all stress on the hoisting

cables and sling before going back in to look at how the cable is secured.

7. When operating hoisting equipment, use a bell, siren, whistle, or horn to warn persons of an approaching load on hoisting equipment.
8. Do not carry a load over persons unless both of the following conditions are met:
   - The equipment and any associated attachments are designed for such hoisting**, and**
   - The manager, general superintendent, or other officer in charge of the division or shop has approved of the hoisting.

14.5.5 Keeping Load Under Control

Follow these precautions to keep a load under control:

1. Do not move the load suddenly or unevenly when you are swinging the boom, raising the load, or lowering the load. Avoid motions that would require a sudden stop.
2. To guide a suspended load into position, push it instead of pulling. Keep your hands and feet from under the load and maintain balance at all times.
3. Do not operate hoisting equipment if the load is rotating or swaying.
4. To keep an unwieldy load under control:
   a. Secure a tag line or non-conductive hand line to the load.
   b. See that all persons are clear of the load.
   c. Slowly hoist the load until the load line is vertical and the load is under control.

A. Controlling Long Object

When turning a rail or other long object end for end, maintain control of the object so that its movement can be stopped short of a person or obstruction.

B. Preventing Tilting

Follow this procedure to prevent the load from tilting or falling over:

1. Attach a chain, a cable, or tongs above the center of gravity of the load.
2. If possible, lift the load straight up to keep it from dragging, swinging, or catching on another object.

C. Using Double Hook-Up Slings

When lifting sheet steel, bars, pipes, rods, or other such items with a double hook-up sling, use a spreader bar between the chains to keep the chains from shifting.

14.5.6 Using Hoisting Equipment Within Shop Yard Limits

Follow these precautions when hoisting equipment is moving or pushing other equipment within shop yard limits:

1. Have an employee precede the movement to warn others of its approach by walking clear of the track on which the equipment is moving and staying in plain view of the hoisting equipment operator.
2. When operating the equipment, stop it instantly when you do not have a clear view of the employee preceding the movement.

14.6 Using Grapple Buckets

Grapple buckets are normally used for handling timber and ties. Do not use grapple buckets for handling other material unless the operator has been trained to do so.

14.7 Freeing Sling or Hook

Follow this procedure to free a sling or hook:

1. Make sure the load has settled.
2. Position yourself so that the sling, hook, or any part of the load will not catch you.

3. If you are working above ground level, position yourself so that you will not fall.
4. When working at heights above 10 feet, use fall protection.
5. Free the sling or hook.

14.8 Wrecking at Derailment Site

When wrecking will be done at a derailment site and a rail or similar object is unsecured, bent, "tight," under tension, in tension, or in a position such that it may move in any direction when pulled out, the immediate supervisor must:

1. Require all persons to be clear of the possible swing or sweep area.
2. Have the rail or other object secured with a chain, cable, blocks, or other means while it is being freed or other derailed equipment is being handled.
3. Allow the acetylene outfit operator to stay clear of the danger area while cutting the object or joint bolts as follows:
    a. Have the operator use an acetylene outfit torch attached to a sufficiently long pole.
    b. After the torch is secured to the pole, have the operator adjust the flame using tape, wire, string, or another suitable fastening to secure the lever on the torch.
    c. Make sure the operator cuts off short pieces, starting a sufficient distance from the danger area, to gradually release the tension and control the object.

15. WORKING ON OVERHEAD LINES

15. WORKING ON OVERHEAD LINES

15.1 Introduction

This chapter gives safety rules for using climbing gear, working on poles, erecting and removing poles, and working with wires.

15.2 Safety Precautions

Follow these precautions when working on overhead lines:

1. Use an elevating work platform or aerial bucket truck, if possible. Do not climb a pole unless you are qualified to do so.
2. Use a safety harness and lanyard with a positioning belt in the following situations:
   - You are working on a pole.
   - You are on or about a cable splicer's platform or aerial car. Secure the lanyard around the messenger.
3. Adjust lanyard to allow only enough slack to perform duties.

USING CLIMBING GEAR

This section gives safety rules for inspecting climbing gear, sharpening a climber gaff, wearing climbing gear, and putting on skates.

15.3 Inspecting Climbing Gear

Follow these precautions before you use climbing gear:

1. Inspect climbing gear, including climbers, safety harnesses, and lanyards, before you use it.
2. Do not use a climber with a strap or buckle that is defective, or with gaff that is loose, dull, cracked, or less than 1-1/4 inches long.

3. If you find any defects, mark the gear with a warning tag (C&S 105) and separate from serviceable gear in a suitable container.
4. Cover gaffs with safety caps when not in use.

15.4 Sharpening Climber Gaff

Follow these precautions when sharpening a climber gaff:

1. Sharpen a climber gaff on the underside only. Do not sharpen the sides or the top ridge of a gaff.
2. Sharpen a gaff with a fine-tooth file. Do not sharpen a gaff on a grinding wheel.
3. File in a single direction only. Do not cross-file. Cross-filing marks can cause the gaff to weaken when it is under a load.
4. Check the sharpened gaff against the manufacturer's gauge and make sure it is the proper shape.

15.5 Wearing Climbing Gear

Follow these precautions when wearing climbing gear:

1. Wear wood pole climbers on the ground only if you walk immediately from one pole to another and if other factors allow safe movement.
2. Do not wear climbers on pole steps or ladders.

WORKING ON POLES

This section gives safety rules for inspecting, testing, safeguarding, and climbing a wood pole; rescuing someone on a pole; and erecting and removing a pole.

15.6 Safety Precautions

Follow these precautions when climbing poles:

1. Before you climb a pole, visually inspect at least four poles on each side of the pole you are about to climb. Then visually inspect the pole you are about to climb to identify any potential hazards.
2. Before you climb a pole, make sure that any person above is out of your way and that their lanyard is applied.
3. Before you remove your lanyard to descend, make sure that all persons below are clear of the base of the pole.

15.7 Inspecting Wood Pole

Inspect a wood pole before you climb it. Pay particular attention to the condition of these types of poles:

- Old or leaning poles
- Abandoned poles
- Poles marked for replacement
- Poles with excessive weather cracks or other openings
- Poles damaged by foreign objects or fire
- Poles on an embankment, especially if the supporting earth has washed away
- Poles in a straight line that are not carrying a messenger, or are carrying 10 secured wires (or the equivalent) or less

- Poles not side-guyed against the unbalanced pull of wires running to the side, making a corner, or against change in grade
- Poles with a guy wire, brace, or other support that is broken, deteriorated, or otherwise ineffective

15.8 Testing Wood Pole

Test a wood pole before you climb it. Follow this procedure to determine if a pole is decayed, hollow, unstable, or otherwise unsafe:

1. Determine if the pole is decayed by doing the following:
   a. Remove dirt from the base of the pole to a depth of at least 12 inches below ground level.
   b. Use a heavy screwdriver or similar tool to prod any decayed wood from the below-ground part of the pole, and determine the amount of good wood present.
2. Determine if the pole is hollow. Use a hammer to sound the pole as high as you can comfortably reach.
3. Determine if the pole is unstable by doing the following:
   a. Apply a pike pole to the wood pole 12 feet from the ground on the side not supported by wires or messenger. Use a pike pole 12 to 16 feet long.
   b. If a pike pole is not available, position a 3/8-inch handline on the wood pole 12 feet from the ground.
   c. Rock or sway the pole to determine its condition. If using a handline, sway the pole at a right angle to overhead wires.

   CAUTION: Take precautions to prevent a broken pole from contacting wires, interfering with traffic, or injuring others.
4. If the pole is decayed, hollow, unstable, or otherwise unsafe, safeguard the pole. Refer to Rule 15.9.

15.9 Safeguarding Wood Pole

If the procedure in Rule 15.8 indicates that a wood pole is unsafe, temporarily safeguard the pole before you climb it. Follow this procedure:

1. If the pole is less than 30 feet high, brace the pole using pikes.
    a. Use at least three pikes 18 feet long or longer.
    b. Set the pikes securely against the pole and into the ground to prevent the pole from falling in any direction. Place the pike butts at least 6 feet from the base of the pole.
    c. Drive a bar into the ground. Secure the butt of the pole to the bar. Ground the pikes fully. Guard the pike butts.
    d. If you must untie wires or loosen suspension strands, guys, or other supports, use two cant hooks to prevent the pole from turning.
2. If the pole is 30 feet high or more, guy the pole.
    a. Use any of the following materials or a stronger material as temporary guys:
        - 1/2 inch or larger hemp rope
        - 5/16 inch messenger strand
        - No. 6 B.W.G. iron wire
    b. Support the pole with at least three pikes to prevent it from falling. Place the pikes so that they will counteract the force applied to the pole when you attach the temporary guys. Guard the pikes when necessary.
    c. Set the pikes securely against the pole and into the ground to prevent the pole from falling in any direction. Place the pike butts at least 6 feet from the base of the pole.
    d. Drive a bar into the ground. Secure the butt of the pole to the bar.

e. Attach the temporary guys at least 3/4 of the way up the pole. Attach the other end of each guy to a suitable object, such as:

- An adjacent pole or tree, **or**
- A bar driven into the ground at a safe distance from the base of the pole. The minimum safe distance is 3/4 the pole height.

f. Make sure that temporary guys have the same clearance as that specified for permanent guys over tracks, highways, streets, sidewalks, and electrical wires or apparatus.

3. Securely set a good pole in the ground close to the defective pole. Secure the defective pole to the good pole at the top and bottom. Remove any wires attached to the defective pole. Lower the defective pole to ground with a rope.

   a. If a good pole is not available, temporarily set a substantial post securely in the ground and secure defective pole to it until a good pole is available.

15.10 Climbing Wood Pole

Follow these precautions when climbing a wood pole:

1. Before you climb, remove all signs, nails, and tacks.
2. Do not hurry. Take short, careful steps.
3. Observe the pole as you climb. Avoid striking a gaff against metal or another unsuitable part of the pole, such as a knot.
4. Hold onto the side of the pole that faces away from you. Do not use the crossarm or its braces as a handhold.
5. Whenever possible, climb the high side of the pole.
6. Keep your knees at least 8 inches from the pole. Keep your knee locked on the weight-bearing leg.
7. Do not overclimb the pole.
8. Use special care on a pole covered with ice or snow, as follows:

a. Secure the positioning belt around the pole.

b. Clear the ice and snow with a hand tool while you climb.

c. Be sure the gaff penetrates into the wood.

15.11 Rescuing Someone on a Pole

Follow this procedure to rescue someone on a pole:

1. Evaluate the situation.
   a. Shout the person's name. Is he or she unconscious?
   b. Is he or she in contact with an energized facility?
   c. If the person is unconscious or in contact with an energized facility, summon help.
2. Protect yourself.
   a. Remove all serious hazards.
   b. Wear electrical protective equipment, if necessary. Refer to Rules 12.5 through 12.10.
3. Climb to a rescue position.
   a. Get above the person, unless he or she is in contact with an energized facility.
   b. Secure your positioning belt before you give assistance.
   c. Clear the energized facility.
4. Determine the person's condition.
   a. Is the person breathing? If not, immediately clear the person's mouth, tilt the person's head back, position your mouth over the person's mouth, and give four quick full breaths.
   b. Keep first aid on the pole to a minimum. Get the person down as soon as possible.

5. Lower the person.
    a. Attach the load line to the person high under the armpits using three half hitches. Slide the hitches tight against the person's chest and close to one armpit.
    b. Check that lines will not bind. Take the slack out of line and maintain firm grip on the fall line.
    c. Cut the person's positioning belt.
    d. Lower the person quickly but carefully.
6. Continue resuscitation until help arrives. Accompany the injured person to a hospital for a complete evaluation.

15.12 Erecting and Removing Pole

Erect or remove a pole only with the use of a boom truck or hoisting equipment.

WORKING WITH WIRES

This section gives safety rules for dead-ending or cutting wires, positioning wires, riding a messenger strand, using a wire-cable pulling tool, and unreeling wire.

15.13 Dead-ending or Cutting Wires

Follow these precautions when you are dead-ending wires or cutting enough wires to cause excessive pull on the crossarm:

1. Safeguard the pole according to Rule15.9.
2. Guy the crossarm on both ends.

15.14 Positioning Wires

Stay on the outer side of the curve when you are:

- Pulling a wire, cable, or rope into position, **or**
- Releasing it from a position while you are on a curve or corner.

15.15 Riding Messenger Strand

Follow these precautions when riding a messenger strand:

1. Before you ride a messenger strand, carefully examine it and determine if it is safe for riding.
2. Make sure you will have the required clearance from energized circuits and apparatus.
3. Inspect cable ties when you are riding a messenger strand over energized wire. If you have doubts about the cable tie condition, secure the cable to the messenger before you proceed.
4. If the messenger strand is unsafe for riding, use an emergency strand and report the condition of the messenger strand to your immediate supervisor.

15.16 Using Wire-cable Pulling Tool

Follow these precautions before you use a wire-cable pulling tool:

1. Check the hauling clamps (grips) and make sure that:
   - The jaw condition is acceptable.
   - The jaws and all other parts are properly aligned.
   - The hauling clamps are not distorted from improper use.
2. Use the proper hauling clamp for the wire being pulled.
3. Make sure hauling clamp is tightly secured to the wire or cable.
4. Make sure the rope is equipped with a safety latch hook and the hook is in the handle eye of the hauling clamp.
5. Allow only one person to pull on the rope.

15.17 Unreeling Wire

When you are unreeling wire, tend the reel from the opposite side from which the wire is being pulled.

16. POWER PLANT WORK

16. POWER PLANT WORK

16.1 Introduction

This chapter gives safety rules for working in a power plant, including entering, maintaining, and inspecting stationary boilers, cleaning gauge glass, working on cylinders, and closing drop doors on cars.

16.2 Entering Stationary Boiler

Before you enter a stationary boiler, do the following:

1. Make sure the following valves have been closed and locked:

   - Crown valve
   - Blow-off valve
   - Feedwater heater valve

   NOTE: Only the person performing the work or the immediate supervisor may remove the locks once all persons are in the clear.

2. Before you enter the boiler's combustion or soot chamber to remove soot:

   a. Make sure the boiler has been thoroughly cooled and the soot saturated with water.

   b. Ensure sufficient ventilation. Wear the appropriate respirators if needed.

   c. Make sure another employee is stationed outside the opening.

16.3 Maintaining Stationary Boiler

Make sure that a boiler is not under pressure before you do any of the following work:

1. Repair or tighten tubes, flues, or air box sheets.
2. Wash out plugs or boiler fittings.

EXCEPTION: You may caulk a boiler while it is under pressure, but only if your immediate supervisor authorizes. In this case, another employee must be stationed just outside the firebox door while you do the work.

16.4 Inspecting Stationary Boiler Fire

Follow these precautions when inspecting or cleaning a fire in a stationary boiler:

1. Before you inspect or clean the fire, shut off the forced draft to keep the fire from being forced out the door.
2. After each inspection of the fire, secure the latch on the observation door.

16.5 Cleaning Gauge Glass

Before you wipe or clean the gauge glass, close the top and bottom gauge valves and open the gauge glass blow-down valve.

16.6 Working on Cylinders

Do the following before you work on or examine the inside of the cylinder on any moving part of an air compressor, hydraulic pump, or stationary cylinder:

1. Block the flywheel or crosshead.
2. Open the cylinder at both ends.
3. Properly lock and tag out the apparatus.

16.7 Closing Drop Doors on Cars

Follow these precautions when closing drop doors:

1. Wait to close the drop door on a car until it has moved away from the coal bin.
2. Never stand on the grill over the coal bin to close the drop door.

17. AUTO TERMINALS

17. AUTO TERMINALS

17.1 Introduction

This chapter gives safety rules for working in auto terminals, including handling vehicles in auto terminals, working on or about multi-level equipment, working on or about ramps, and handling bridge plates.

HANDLING VEHICLES IN AUTO TERMINALS

This section gives safety precautions for unloading/loading and operating vehicles in auto terminals, handling tiedowns, and reinflating tires.

17.2 Safety Precautions

Follow these precautions when handling vehicles in auto terminals:

1. Do not start the car until the employee is completely inside the vehicle and the door is closed.
2. When working near heated components (such as parts of the exhaust system and radiator hoses), use caution and avoid touching the heated component.
3. Allow only one vehicle at a time on the ramp.
4. To avoid obstructing vision at intersections, do not park trucks, vans, or other high vehicles in the first two or last two bay spaces in any physical row of vehicles.

17.2.1 Protecting Unsecured Locomotive

If a locomotive is not properly secured, or when a crew removes the locomotive:

1. Install additional protection in the form of a portable derail and blue flag at the end of the locomotive that faces where the Stevedores are working.
2. If no additional protection is available or provided, stop work until the locomotive has been properly secured or has departed the Automotive Terminal.

17.3 Unloading/Loading Vehicles in Auto Terminals

Follow these precautions when loading on or unloading vehicles from railcars:

1. You do not need to wear a seatbelt.
2. Use designated aisles, roadways, and loading/unloading pads.
3. Before unloading vehicles, make sure the wheels are pointed straight forward.

17.3.1 Pushing Vehicles off Railcars by Hand

Use caution when pushing vehicles off railcars by hand.

1. Push only when you are standing on railcar tread ways that have anti-skid paint.
2. Use at least two employees to push the vehicle off by hand.
3. Use extreme caution to avoid falling when pushing a vehicle over bridge plates from one railcar to another.

17.3.2 Unloading Vehicles From Multi-Level Railcars

Place multi-level railcars for unloading so that vehicles can be driven off forward. Have vehicles backed off of a railcar only if the Terminal Manager or representative authorizes.

17.4 Operating Vehicles in Auto Terminals

Follow these precautions when operating vehicles in auto terminals:

1. If a terminal has one-way aisles or roadways, drive vehicles only in the proper direction on that aisle or roadway.
2. Do not drive through vehicle parking spaces, load lanes, or truck loading/unloading areas as short cuts.
3. When driving vehicles on multi-level railcars, watch for and avoid or stop before hitting loose end doors or chains.
4. Constantly look in the direction the vehicle is moving for obstructions or other unsafe conditions. Particularly use caution when rounding a corner, passing a doorway, and driving in congested areas or at intersections.
5. When operating the vehicle:
    a. Test the brakes and warning devices immediately after starting.
    b. When starting on a railcar, accelerate slowly for one vehicle length until certain tie down chains are disconnected.
    c. Do not allow the driver to be distracted or interfered with.
    d. Go no faster than a speed that will allow you to stop short of a person or obstruction.
    e. Reduce speed and give a warning if someone is close to the vehicle.
    f. When driving a shuttle van, warn others before suddenly applying the brakes.

17.4.1 Obeying Motor Vehicle Laws

When driving vehicles in auto terminals, obey the motor vehicle laws and observe all posted terminal speed signs.

1. Drive no faster than 15 MPH in storage lots and 5 MPH on ramps and railcars.
2. Slow down and use caution at intersections.

17.4.2 Operating Vehicles in Inclement Weather

Follow these precautions when operating vehicles in auto terminals during inclement weather, such as fog, snow, rain, ice, etc.:

1. Use extreme care.
2. Remove snow and ice from windshields.
3. Allow for greater stopping distances.
4. When conditions require, drive with headlights on.

17.5 Handling Tie Downs

Handle tie downs as follows:

1. Arrange all tie down chains between tie down tracks so vehicles can be driven through railcars without interference.
2. Properly store all chock tie downs and hang end straps on the proper hook.

17.6 Reinflating Tires

Before reinflating flat or very low tires:

1. Refer to the manufacturer's instructions for the proper method and air pressure.
2. Never over-inflate tires.
3. Constantly watch the tire while inflating it.

NOTE: When operating a bumper jack, refer to Rule 11.14.4C.

WORKING ON OR ABOUT MULTI-LEVEL EQUIPMENT

This section gives safety precautions for working on multi-level equipment, including removing seals, opening end doors, raising or lowering decks, moving from one railcar to another, and setting brakes.

17.7 Safety Precautions

Follow these safety precautions when working on or about multi-level equipment:

1. When lowering tools or equipment such as hammers or bridge plates from railcars, be certain other individuals are in the clear.
2. While working on elevated decks:
   a. Look before stepping in any direction.
   b. Keep constant lookout for objects overhead that would cause injury if struck.
3. When inside multi-level equipment, determine the available clearance and confine your body movement to the space available to avoid contacting any object. Remove any debris on decks.

17.8 Removing Seals—Bolt and Cable

Follow these precautions when removing seals:

1. Have only one person remove the seal. Make sure all other employees are clear of the area in case the seal "flies off."
2. When removing a bolt-type seal, brace feet firmly on the ground and maintain a braced position while removing the bolt.
3. Discard the bolt or seal properly to avoid a safety hazard.

   NOTE: Do not place any part of the discarded seal or bolt in any hole of the drawbar or coupler.

17.9 Opening End Doors

Follow these precautions when opening end doors:

1. Open radial end doors (clamshells) using a 3/4-inch socket with an extension as follows:
   a. Place the extension firmly in the railcar unlocking device.
   b. Rotate the handle 1/8 turn clockwise or in the direction of the arrow stenciled on the railcar.

c. Roll the door open a few inches, then remove the ratchet.

d. Continue opening the door until it is fully opened and latched.

2. Secure bifold and trifold doors open to avoid safety hazards when the doors close unexpectedly.

3. Open and secure all types of doors before beginning unloading.

4. Properly close and secure end doors before the railcar leaves the terminal for outbound movement.

17.10 Raising or Lowering Deck

Follow these precautions when raising or lowering a deck:

1. Ensure that at least two employees raise or lower moveable decks.

2. Before raising the deck, an employee who will perform the work must:

   a. Inspect the deck to ensure the equipment is operating properly.

   b. Check to ensure all hinges, springs, and moveable parts are working properly and are greased or oiled.

3. If a deck is difficult to raise, use a mechanical method, such as a deck jack, to avoid injury while raising and lowering.

4. Secure decks in the raised or lowered position with the latches or pins provided.

17.10.1 Operating Deck Jack

Follow these precautions when operating a deck jack:

1. Make all movements with firm footing and secure handholds.

2. Place the jack so that it will not shift while raising or lowering decks.

3. Make sure you and nearby employees keep hands, legs, feet, and other parts of the body clear of pinch points during

movement. Do not be where you or others may be injured if the jack slips.

4. Keep your head below the level of the deck when it is in the down position.

5. Warn all persons and make sure they are clear while raising and lowering the deck.

17.11 Moving From One Railcar to Another

To move from one railcar to another:

1. Dismount from each railcar to get on the next railcar. Do not jump from one piece of equipment to another on the same or adjacent track.

2. If bridge plates are on the railcars, you may cross over the bridge plates to the next car if you use firm footing and secure handholds.

3. During icy, snowy, rainy, or other such conditions that make the railcar slippery, dismount each railcar to reach the next railcar.

17.12 Setting Brakes

When working on multi-level equipment, handbrakes must be set on all railcars. The unloaders are responsible for checking each handbrake and applying those that are not set prior to performing any work on the multi-levels.

WORKING ON OR ABOUT RAMPS

This section gives safety precautions for working on or about ramps, including moving portable ramps, using ramps for loading and unloading, servicing ramps, and inspecting ramps.

17.13 Safety Precautions

Follow these precautions when working on or about ramps:

1. Only qualified, authorized employees are permitted to operate loading or unloading ramps.
2. Before operating a ramp, be familiar with their use and rated capacity and use them only for their intended purpose.
3. Before operating a ramp, make sure all persons are in the clear.
4. Do not raise, lower, or move ramps while a person or vehicle is on the ramp.
5. Do not be on, under, or within 3 feet of the ramp while it is being raised or lowered.

17.14 Moving Portable Ramps

When moving portable ramps—or other equipment used to load or unload vehicles—from one location to another, use one assistant to help guide the movement.

17.15 Using Ramps for Loading and Unloading

Follow these precautions before using ramps for loading and unloading:

1. Before driving a vehicle on the ramp, apply the brakes and lower outriggers or stabilizers to prevent the ramp from moving.
2. Properly position locking pins and leveling jacks after adjusting the ramp to the desired height for loading or unloading.
3. Properly secure portable bridge plates.
4. Properly secure all moveable decks on a ramp in the proper position.

17.16 Servicing Ramps

Follow these precautions when working on or repairing ramps:

1. Maintain and service loading ramps regularly.
2. Before working on or repairing ramps:
   a. Turn the ignition off, remove the key (if any), and tag the controls with an out-of-service tag.
   b. Properly block the ramp to prevent movement.
   c. Place outrigger down to prevent movement.

   NOTE: The employee who applies out-of-service tags and secures the ramp for repairs and maintenance is responsible for promptly removing the tags and securing devices after the work is complete.
3. Keep tread areas on ramps in good repair and free of sharp metal edges that could damage tires or catch on an undercarriage of vehicles.

17.17 Inspecting Ramps

Follow these inspection requirements.

1. Inspect ramps twice daily—once before use and once at the end of the work day.

   NOTE: A qualified employee must perform the inspections.
2. Regularly inspect locking pins, cables, hydraulic hoses, and support members to ensure they are working properly.
3. Remove any defective ramps or parts from service until they can be repaired.

HANDLING BRIDGE PLATES

This section gives rules for placing and storing bridge plates.

17.18 Placing and Removing Bridge Plates

When placing bridge plates:

1. Place them on all decks of all railcars to be unloaded before beginning to unshackle the vehicles.
2. Place bridge plates with the hinged end attached to the railcar from which the vehicle will be driven.

   EXCEPTION: Note these exceptions:

   a. If the deck of one railcar is higher than another, attach the hinged end to the railcar with the higher deck height.

   b. If the barrel hinge adaptor is damaged or missing and will not allow proper hinge connection, attach the bridge plate to the opposite railcar.
3. When removing bridge plates, do not drop or throw them to the ground. Hand them down.

17.19 Storing Bridge Plates

Store bridge plates neatly. If storing them on the ground, place them with the anti-skid paint side up and stack them no more than three high.

GLOSSARY

The following terms are used in the Safety Rules and General Responsibilities manual.

Adjacent tracks

Two or more tracks with track centers spaced less than 25 feet apart.

ANSI

American National Standards Institute.

Attended equipment

On track or off track equipment in clear view of the operator or responsible person.

Blocking device

A lever, plug, ring, or other method of control that restricts the operation of a switch or signal.

Blue signal protection

Used to indicate that repairmen are under or between equipment, and the equipment must not be started or moved. Blue signal protection has three components:

- A blue flag displayed at the track clearance point
- A blue light displayed at night or when visibility is poor
- Track switches or derails secured in the protecting position with private locks or approved blocking devices

Braced position

A standing position with feet set apart to resist movement, and a grip on a handhold, if possible.

Camp car

Camp, rail detector, instruction, or other on track car or equipment used for living, meeting, demonstrating, or training.

Clear of tracks

A location at least 4 feet outside the rail of a track. A location between main tracks cannot be clear of tracks unless the track center is at least 19 feet. See Rule 10.10, Working on Bridges and in Tunnels, for an explanation of *Clear of tracks* in a tunnel.

Competent person

A person who can identify actual and possible hazards to employees in the surroundings or working conditions and who is authorized to eliminate those hazards.

Confined space

An enclosed area (such as a sewer) that has limited openings for entrance and exit and could contain contaminated or oxygen-depleted air.

Controlled track

Track upon which all movements must be authorized by a Train Dispatcher or Operator.

Cylinder

A pressure vessel for storing gases.

Derail

A track safety device designed to guide a car off the rails at a selected spot as a means of protection against collisions or other accidents.

Dust

Created when solid material breaks down and creates particles that float in the air and eventually settle out by gravity. Dust is produced by operations such as grinding, crushing, drilling, blasting, sanding, and milling.

Effective securing device

A device, used to prevent the operation of a manually operated switch or derail, that is:

- Vandal resistant
- Tamper resistant, and

- Designed to be applied, secured, uniquely tagged, and removed only by the class, craft, or group of employees for whom protection is being provided.

Engine

A machine that produces power through internal combustion. Also see *Motor*.

Equipment

Any apparatus that moves on the track, highway, or elsewhere.

Exclusive use of track

A method of establishing Working Limits on controlled track in which movement authority is withheld or restricted by the Train Dispatcher or Operator, or one or more approaches to the Working Limits are protected by flagmen.

Firm footing

A stance with your feet flat and firmly on the ground, equipment, or other level place. For firm footing on a stirrup or rung, place your foot so that your heel touches the stirrup or rung, when space permits. If space does not permit, turn your foot sideways slightly.

Form D

See Movement Permit Form D.

Foul time

A method of establishing Working Limits through exclusive use of the track in which notification is given and recorded by the Train Dispatcher or Operator to an employee that no trains will operate within a specific segment of controlled track during a specific time period, and the required blocking devices have been placed on the control machine to protect the track fouled. Foul time shall remain in effect until the employee to whom the foul time was issued has reported clear of the track.

Fouling track

The location of an individual or equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on track equipment, or in any case is within 4 feet of the field side of the near running rail.

Fumes

Created when solid materials vaporize under high heat and the metal vapor cools and crystallizes into an extremely small particle. Fumes are produced by operations such as welding, smelting, and pouring molten metal.

Gang

See Roadway Work Group.

Gases

Substances that can diffuse or spread freely throughout a container or area. Examples include oxygen and carbon monoxide.

Handhold

A firm grip, with both hands on a handrail or other stationary support, if possible.

Hazard

Anything that can cause injury or accident.

High speed territory

Territory where passenger train speeds are authorized on any track to exceed 80 MPH.

Hoisting equipment

Apparatus (such as a crane) that lifts or lowers objects or material. Hoisting equipment can be fixed or mobile, power-driven or manually driven.

Hump yard

See *Remotely Controlled Hump Classification Yard*.

Immediate supervisor

A person in charge of the work being performed.

Inaccessible track

A method of establishing Working Limits on non-controlled track by preventing access to the Working Limits.

Individual train detection (ITD)

A procedure that may be used under strictly defined circumstances by trained and qualified lone workers to provide on track protection on certain tracks outside Working Limits.

Interlocking limits

The tracks between the opposing home signals of an interlocking.

Lone worker

An individual employee who is not being afforded on track protection by another employee, is not a member of a gang, and is not engaged in a common task with another employee.

Look in both directions

A safety procedure for crossing track and other situations. Turn your head and look in both directions before you reach a track, move from under or between equipment, or encounter any situation when you must be alert for moving equipment or vehicle hazards.

MPH

Miles per hour. MPH is the standard unit of measure for speed.

Mist

Created when liquids atomize and condense in the air. Mist is produced by operations such as spraying, plating, mixing, and cleaning.

Motor

A machine that produces power by means other than internal combustion. Also see *Engine*.

Movement Permit Form D

A form containing written authorization(s), restriction(s), or instruction(s), issued by the Dispatcher to specified individuals.

Non-controlled track

Track upon which trains are permitted by the rules or special instructions to move without receiving authorization from a Train Dispatcher or Operator.

Occupied camp car signal

Used to indicate that employees are in, around, or near camp cars, and the equipment must not be coupled to or moved. The occupied camp car signal has three components:

- A white circular sign with “Occupied Camp Car” written in black, displayed at the track clearance point
- A white light displayed at night or when visibility is poor
- Track switches or derails secured in the protecting position with private locks or approved blocking devices

On track safety

The state of freedom from the danger of being struck by a moving railroad train or other equipment, provided by operating and safety rules that govern track occupancy by personnel, trains, and on-track equipment.

Operator

The railroad employee in charge of a remotely controlled switch or derail, an interlocking, a controlled point, or a segment of controlled track.

PSI or psi

Pounds per square inch. PSI is the standard unit of pressure.

Personal protective equipment

Equipment and clothing designed to protect a person from hazards.

Pilot

An employee assigned to a train or track car when the Engineer, Conductor, or Track Car Driver is not qualified on the physical characteristics or the operating rules of the territory to be traversed.

Qualified employee

An employee who has successfully completed all required training for, has demonstrated proficiency in, and has been authorized to perform the duties of a particular position or function.

Railroad bridge worker

An employee of, or employee of a contractor of, a railroad responsible for the construction, inspection, or maintenance of a bridge whose assigned duties, if performed on the bridge, include inspection, testing, maintenance, repair, construction, or reconstruction of the track; bridge structural members; operating mechanisms and water traffic control systems; or signal, communication, or train control systems integral to that bridge.

Remotely controlled hump classification yard

The area where cars can roll down a hill by gravity into tracks. In other words, the area from the crest of the hump through and including the ladder tracks at the pull-out end of the class yard. This includes the class tracks.

Restricted speed

Prepared to stop within one-half the range of vision—short of a train, obstruction, or switch improperly lined. Be on the lookout for broken rail. Speed must not exceed 20 MPH outside interlocking limits, or 15 MPH within interlocking limits. This speed applies to the entire movement.

Roadway maintenance machine

Powered equipment, other than by hand, which is being used on or near the track for maintenance, repair, construction, or inspection of track, bridges, roadway, or signal, communication, or electric traction systems. These machines may have road or rail wheels or may be stationary.

Roadway maintenance work train

A train that is being operated within Working Limits in conjunction with roadway maintenance, construction, or repairs, under the direction of a designated employee in charge.

Roadway work group

Two or more employees working together on a common task. A gang is a roadway work group.

Roadway worker

An employee, or employee of a contractor to Conrail, who is engaged in inspection, construction, maintenance, or repair of track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities, or roadway maintenance machinery on or near track with the potential of fouling a track, and employees responsible for on track protection.

Three-step protection (3-Step Protection)

A procedure used by an engineer to protect employees before they foul equipment. Three-step protection has three components:

1. Apply the brake.
2. Place the reverser in NEUTRAL.
3. Put the generator field switch in the OFF or OPEN position.

Track

Term designating the area between rails and an area that extends to 4 feet outside each rail.

Track barricade

A designated sign or obstruction fastened to a track that prevents access to the track.

Track car

Equipment (other than trains) operated on track for inspection or maintenance.

Track center

The distance from the center of one track to the center of an adjacent track.

Train

A locomotive with or without cars, with the rear piece of equipment displaying a marker.

Vapors

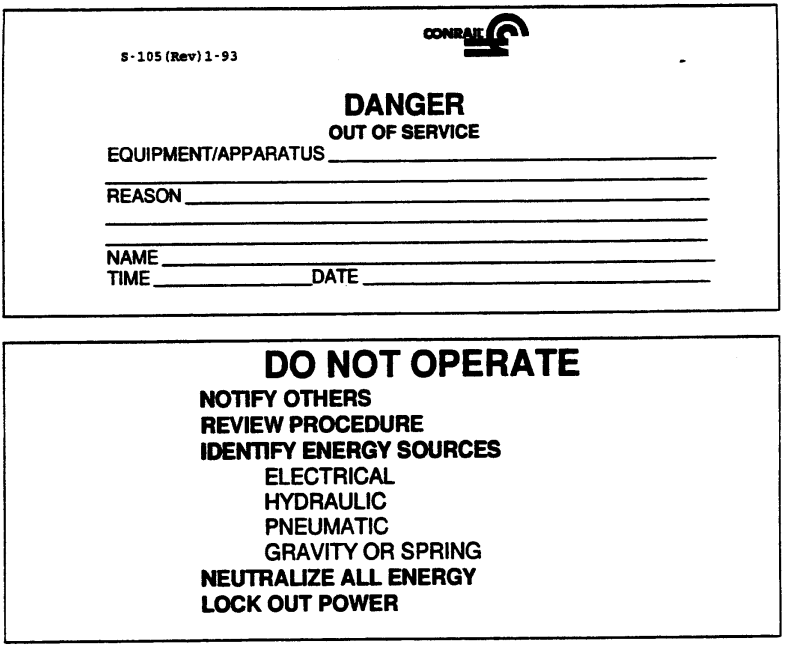
Created when solids or liquids evaporate. Some liquids evaporate easily, such as gasoline, which produces gasoline vapors.

Vehicle

Self-propelled equipment designed for highway use.

Warning tag (S 105)

Tag used to indicate that equipment is out of service and should not be operated.



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CONRAIL

DANGER

OUT OF SERVICE

EQUIPMENT/APPARATUS _____

_____

REASON _____

_____

_____

NAME _____

TIME _____ DATE _____

DO NOT OPERATE

NOTIFY OTHERS
REVIEW PROCEDURE
IDENTIFY ENERGY SOURCES
ELECTRICAL
HYDRAULIC
PNEUMATIC
GRAVITY OR SPRING
NEUTRALIZE ALL ENERGY
LOCK OUT POWER

Warning Tag (S 105).

Watchman

Employee designated to direct or restrict the movement of trains at a point on track to provide on-track protection for roadway workers. This employee may not perform any other duties.

Watchman (train approach warning)

Employee assigned to warn other employees of the approach of trains, engines, or other equipment to permit the employees to safely clear the track before the train, engine, or equipment reaches the work site.

Working limits

A segment of track within definite limits, established by NORAC rules, upon which trains and engines may move only as authorized by the employee in charge having control of the track within the Working Limits. Working Limits may be established through exclusive use of track, foul time, inaccessible track, or train coordination.

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