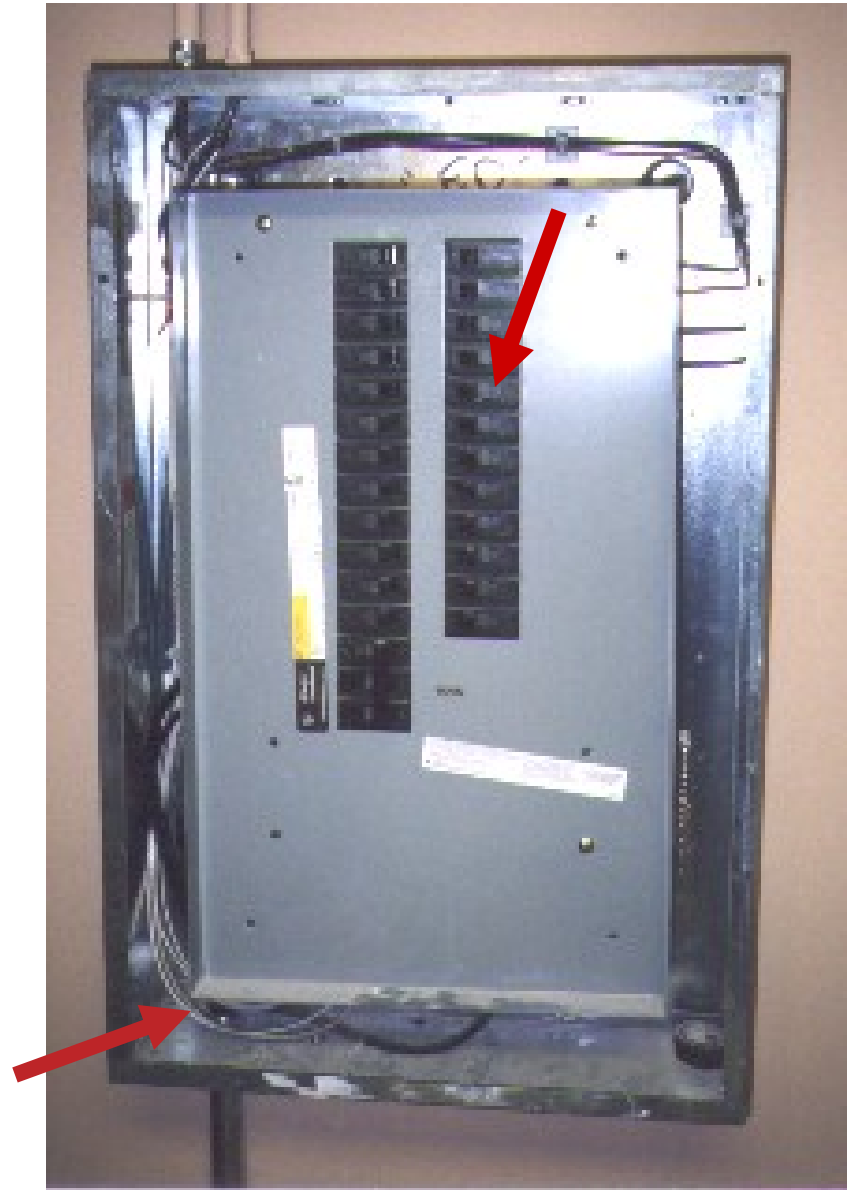


Electrical Panel Boxes

- Live electrical panels must be completely covered with a hard cover (original intended equipment)
- Employees could be exposed to live wires around the perimeter of this box
- No Cardboard!





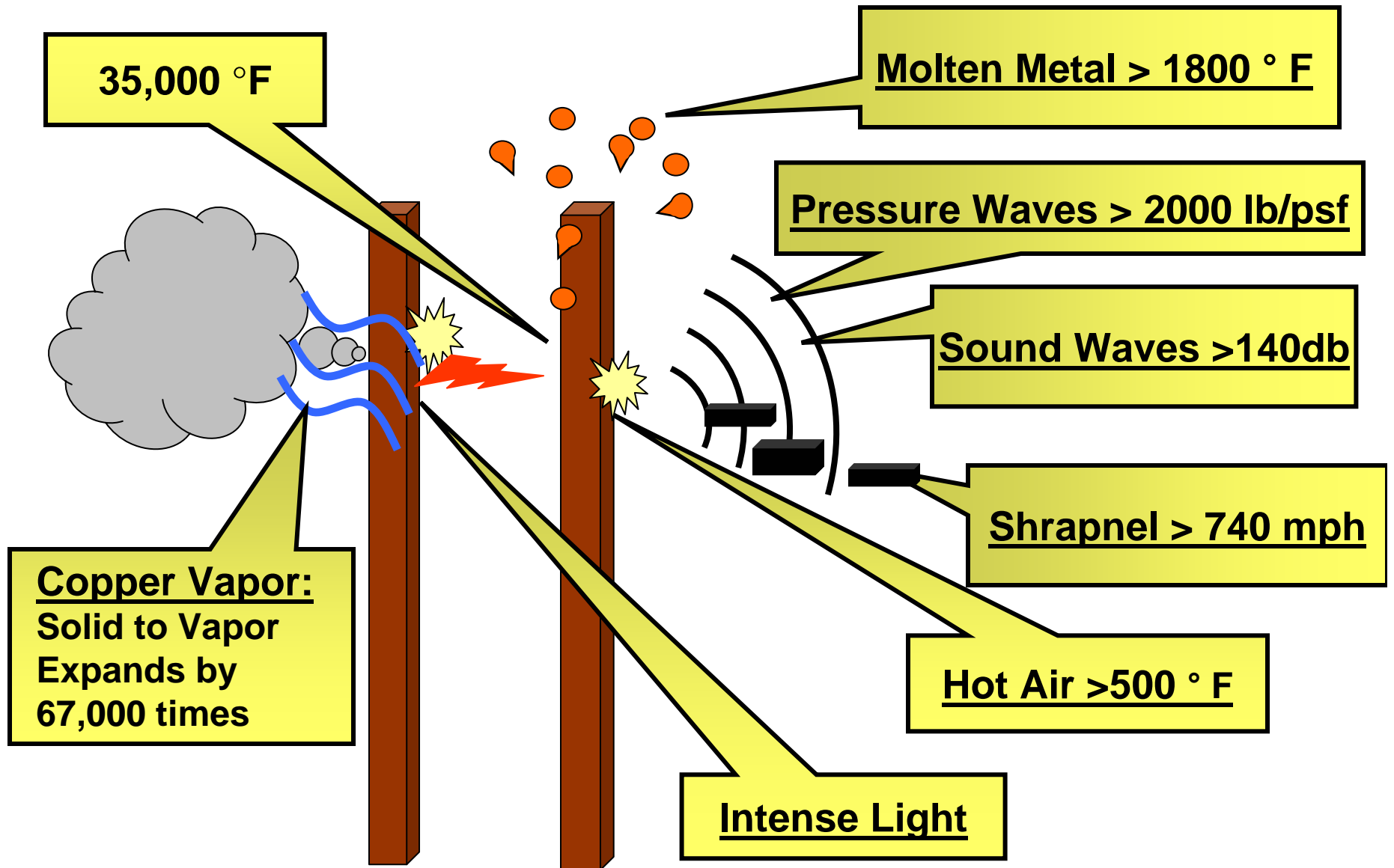
Arc Flash Prevention

An electric arc:

- Typically lasts less than a second
- Has extremely high radiant (heat) energy
- Is explosive in nature (exerts great force)
- Can ignite or melt conventional work clothing



Electrical Arc



NFPA 70E Requirements

- Arc flash boundaries must be known
- Safe approach distances established and maintained
- Marking equipment relative to hazards
- Electrically safe (voltage rated) tools
- PPE (ATPV)
- Training



The Best Way to Work on Energized Electrical Equipment?

DON'T!

- Shut it down and lock it out
- Establish an electrically safe working condition

Overhead Powerlines





The Sad Reality



Power Line Facts

- Overhead lines are typically not insulated. Any covering is generally a weather protection, not insulation.
- Over 90 percent of the contacts occur on overhead distribution lines
- Operators are normally safe if they stay on the equipment
- Ground personnel are over 8 times more likely to be killed

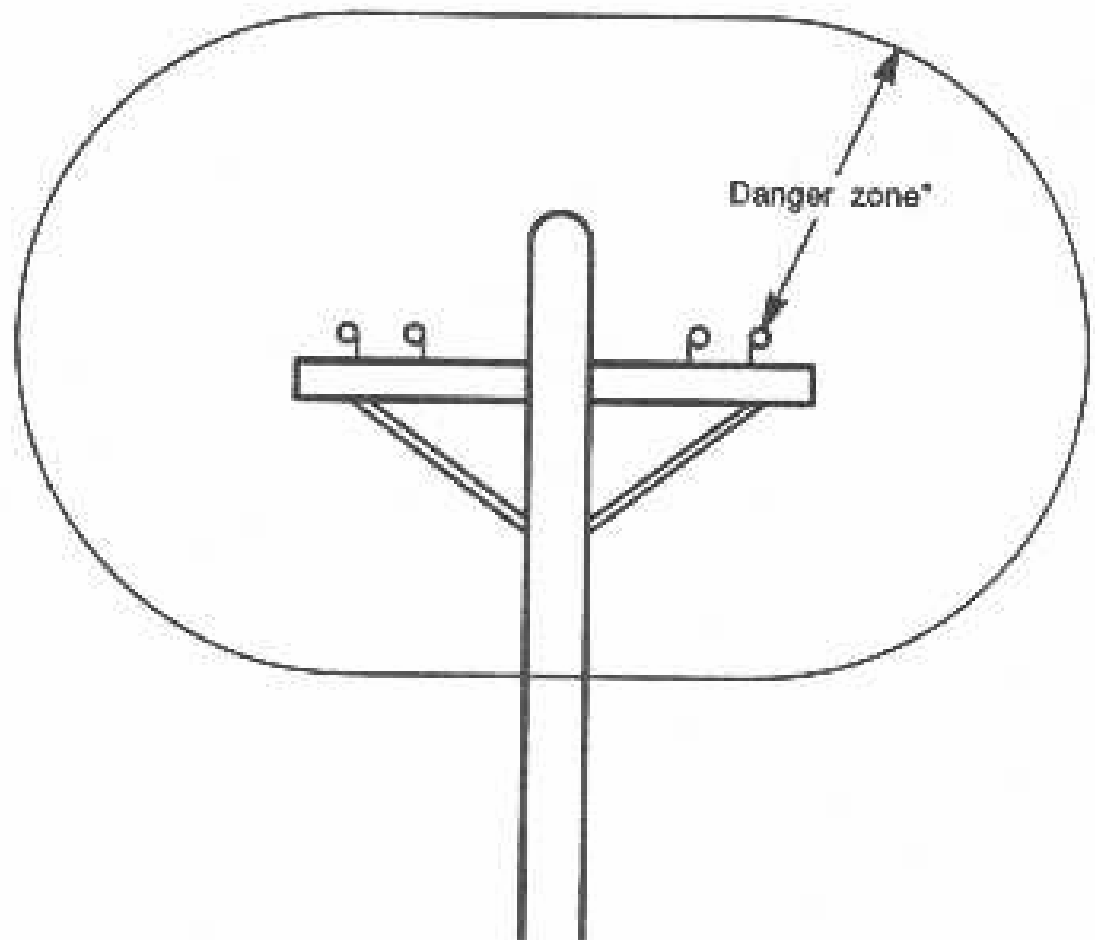
Electrical Damage to the Body

- If you touch a power line, electricity will attempt to travel through your body
- When electricity travels through the body, it heats up and burns body tissue internally
- Electricity leaves the body violently, causing burns or even blowing an exit hole



Maintain Safe Working Clearance

- All equipment – ladders, scaffolds, cranes, trucks, forklifts, etc. – MUST maintain a minimum 10 foot clearance from 50 kV or less
- Add .4 inches for every kV over 50 kV





***MINIMUM 10'
Distance***

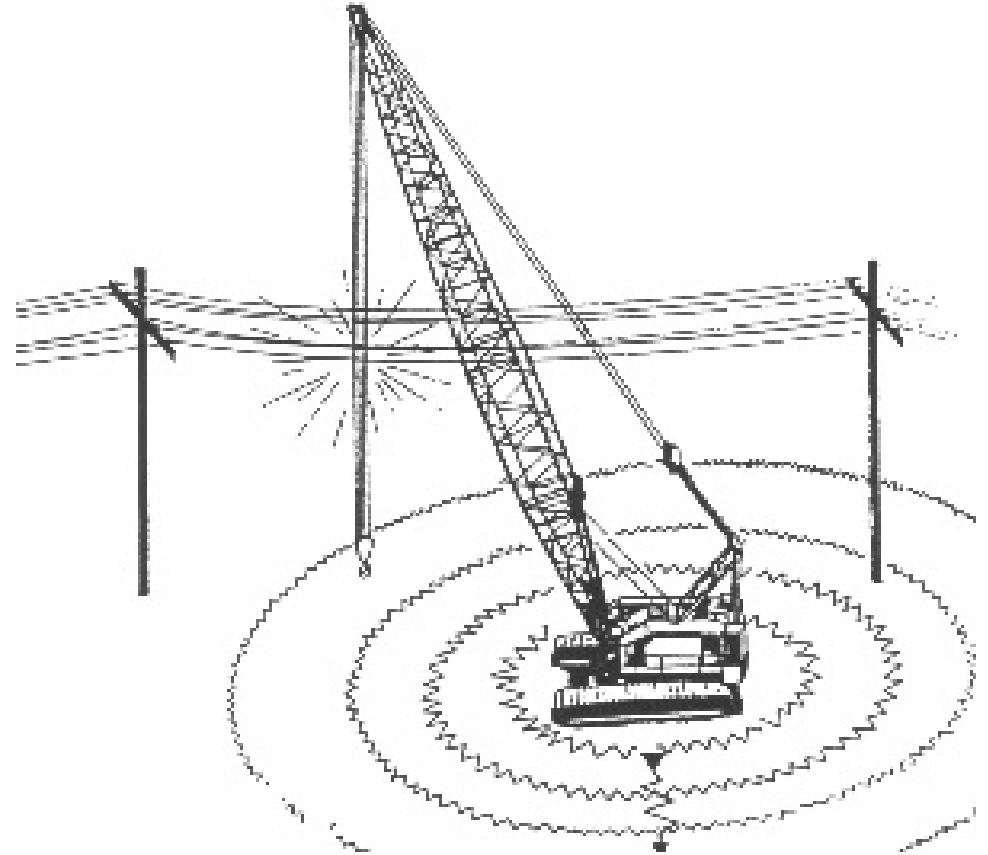
Ensure Adequate Clearance

- Install flag warnings at proper distances
- If it is difficult for an operator to see the power lines, designate a spotter
- If you cannot maintain adequate clearances, you must have the power company insulate, move or de-energize the line



The Ground May Be Hot!

- Electricity dissipates with the resistance of the ground
- As potential drops, fields develop around the electrified machine
- If you step across a line of unequal potential, you could be electrocuted



If Contact Occurs

- Stay on the machine if possible
- Warn all others to stay away
- Notify power company immediately
- Attempt to move away but assure line is not “connected”

Bail Out Procedures

- If you must get out, jump with your feet together
- Do not touch the machine
- Hop or shuffle out of the area





Incident Free

- Planning
- Training
- Inspection
- Oversight
- Lessons learned
- Re-evaluate

Struck-By Hazards



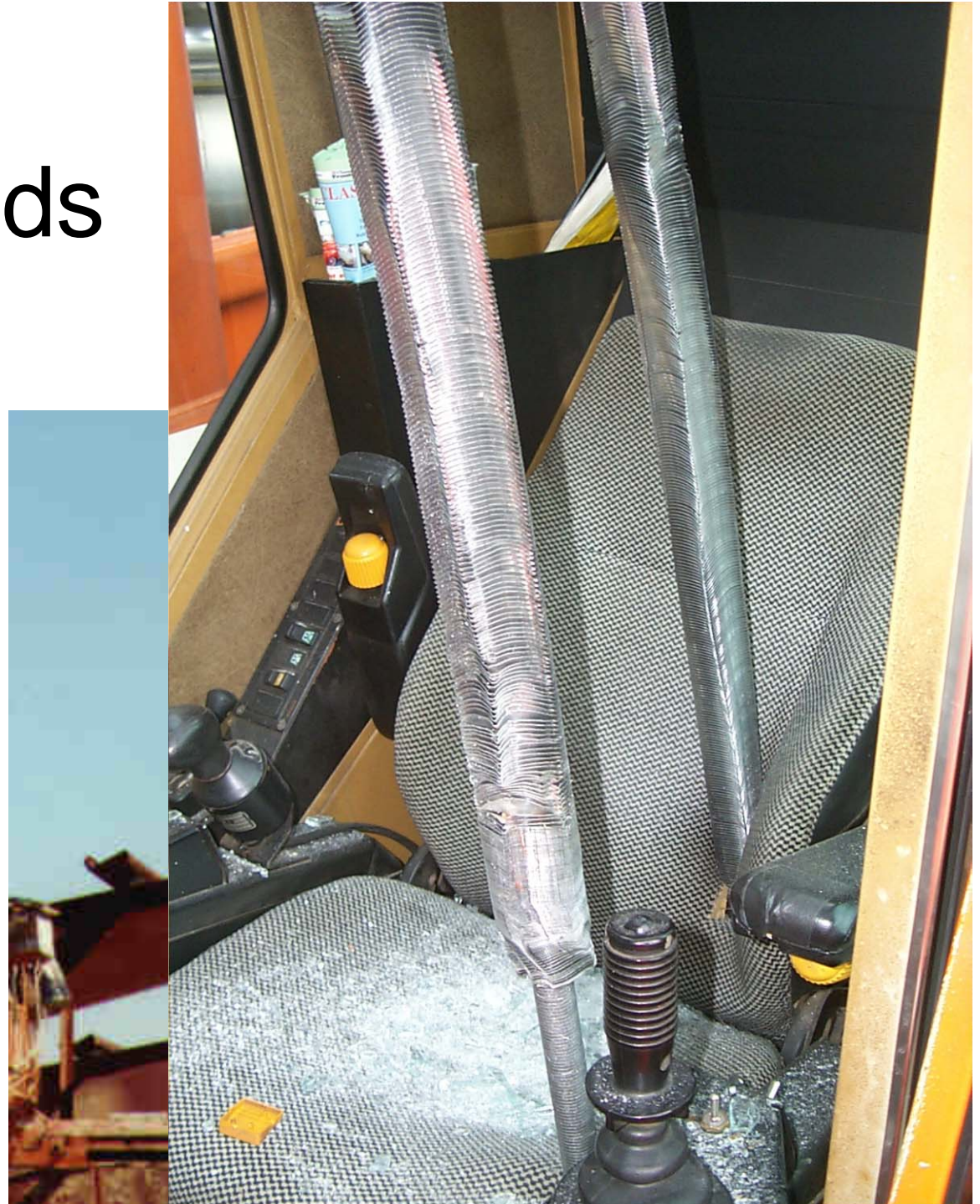
Crane Tip Over and Failure Incidents

- Soft Ground
- Inadequate outrigger support
- Overload
- Crane out of level
- Boom strike



Fatalities Handling Loads

- Struck by the load
- Rigging equipment failure
- Rigging equipment overload
- Improper rigging technique

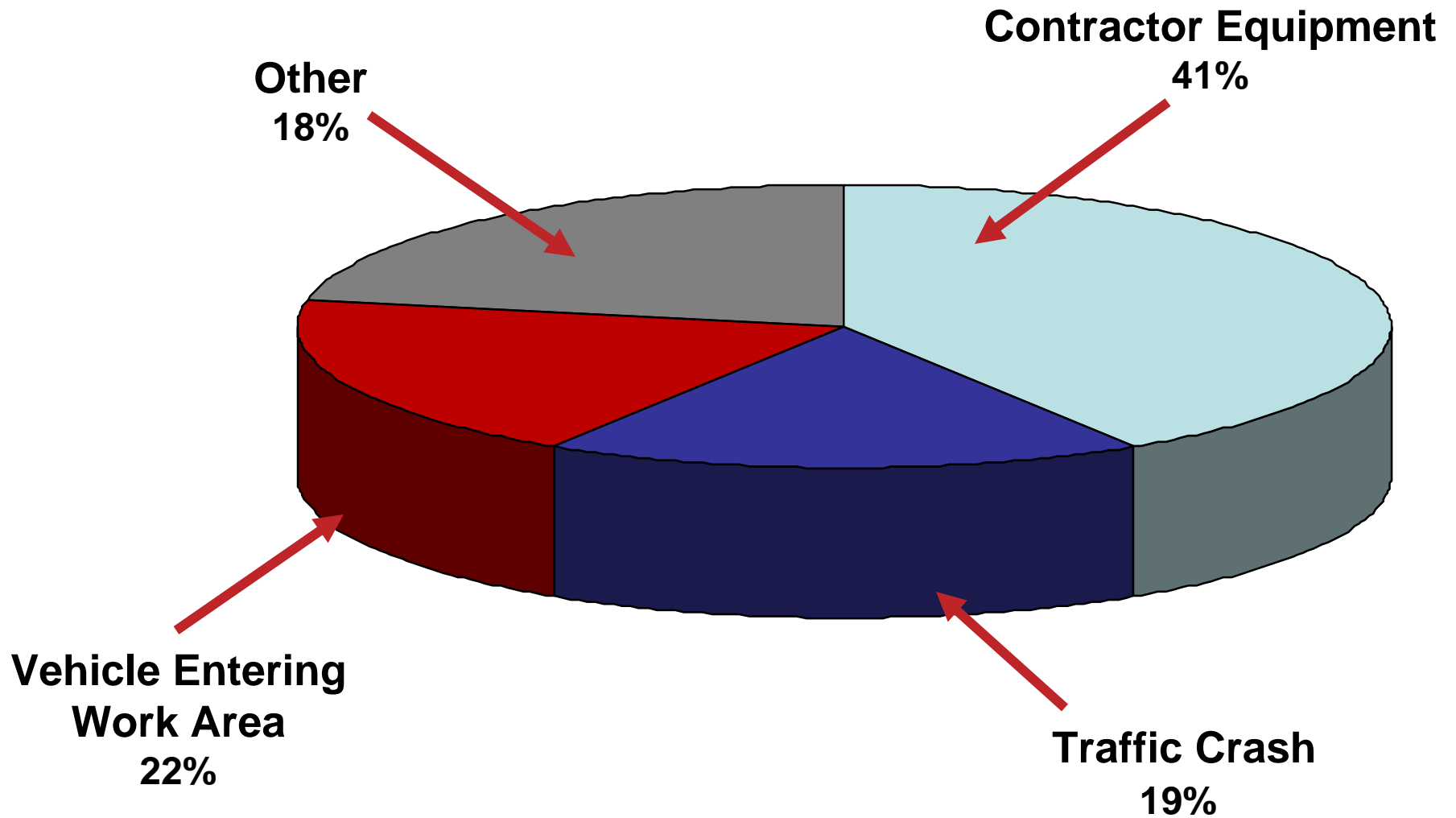


Inspect All Slings

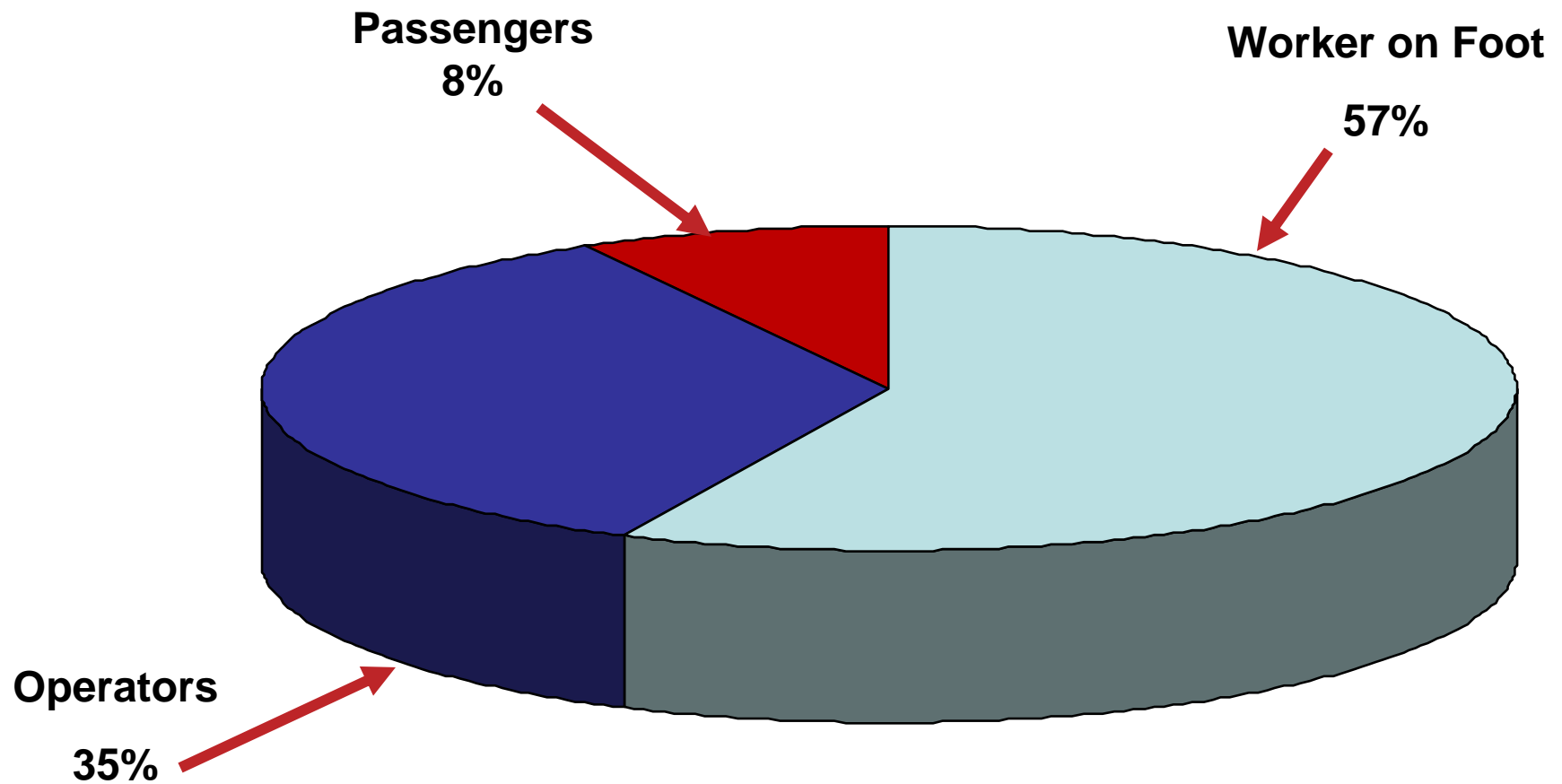
- Slings must be inspected before each use
- Slings should have tags that indicate capacities



Highway Worker Fatalities



Highway Equipment Related Fatalities



Equipment & Vehicle Hazards



Striking Workers on Foot



Poor Worker Position

- This worker is out of the driver's mirror view



Pinned In/Under Equipment

- A truck driver was working between the frame and dump box of a dump truck
- The dump box dropped suddenly, crushing his head





Equipment Does Roll Over!



Wear Your Seat Belt!

- When there is a roll-over hazard, there must be a seat belt
- Always wear the seat belt
- Only ride in the seat provided
- No riding in buckets, on fenders or on steps



Backing Equipment

- Have audible back-up alarms
- Have a spotter to direct the operator if visibility is restricted
- Keep adequate clearance behind the vehicle
- Always pay attention to backing equipment



High Visibility Clothing

- High visibility clothing refers to reflective garments that workers should wear whenever their work place contains hazards related to low visibility or when they work near vehicles or moving equipment

