Hazard of Chain Shot in Logging

What is chain shot?

It's when a piece of saw chain separates from the end of a broken chain and travels at high speed. Chain shot can travel at the speed and force of a bullet.

WARNING:
Chain shot can maintain its lethal velocity after penetrating a polycarbonate glass window or ricocheting off a hard object.

How does chain shot happen?

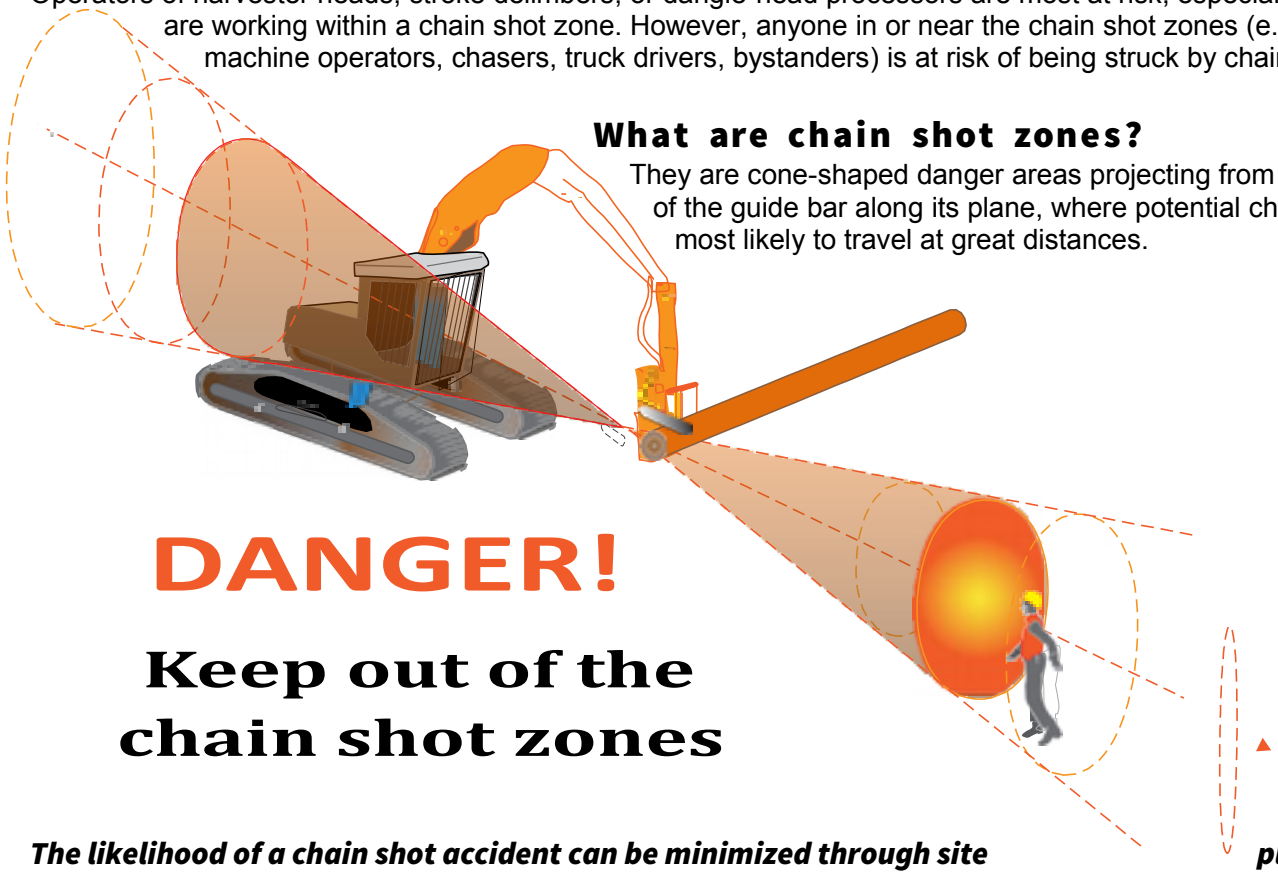
1. First, the loop of saw chain breaks and forms two ends.
2. If the leading end is not contained by the saw box, a chain guard, or a chain catcher, it can rapidly accelerate past the drive sprocket or bar tip in a whip-like motion.
3. At the peak of the whip, a second break occurs that sends saw chain pieces at high speed.

Who is at risk?

Operators of harvester heads, stroke delimbers, or dangle-head processors are most at risk, especially if they are working within a chain shot zone. However, anyone in or near the chain shot zones (e.g., other machine operators, chasers, truck drivers, bystanders) is at risk of being struck by chain shot.

What are chain shot zones?

They are cone-shaped danger areas projecting from both ends of the guide bar along its plane, where potential chain shot is most likely to travel at great distances.



The likelihood of a chain shot accident can be minimized through site planning, machine safeguarding, proper saw chain and guide bar maintenance, and safe machine operation.

Site Planning:

During the pre-work safety meeting, include a discussion on chain shot. • Review the methods workers are to use to minimize chain shot and establish chain shot zones. • Arrange the location and activities of workers so no one is in a chain shot zone.

Machine Safeguarding:

Make sure the chain catcher, chain guard, and shields are securely fastened. • If you have a processor or cutter that doesn't have a chain catcher or chain guard, ask the equipment manufacturer if upgrades are available and install them if they are. • Close all snow holes on harvester and processor heads to reduce the openings the chain shot can escape through. • When replacing machinery windows, check with the manufacturer to determine the appropriate thickness of polycarbonate glass that provides the most protection for your machine operator.

NOTE: ***Always check with the machine manufacturer to ensure that modifications are to their specifications and won't create other hazards or invalidate operator protection certification***.

Saw Chain and Guide Bar Maintenance:

- ✓ Instruct operators on how to properly inspect the cutting systems they use and report unsafe conditions.
- ✓ Inspect saw chains prior to use and frequently for broken and cracked parts, excessive wear and stretch, and poor or loose riveting.
- ✓ Remove damaged and dull saw chains from service for proper maintenance or disposal.
- ✓ Follow a proper change out schedule to remove worn-out saw chains from service before they break.
- ✓ Always repair and sharpen saw chains to the manufacturer's specifications. Store or soak new and newly sharpened saw chains in lubricant prior to use.
- ✓ Adjust and maintain saw chain tension and speed to the manufacturer's specifications.
- ✓ Inspect drive sprockets and guide bar grooves for damage and excessive wear that can adversely affect the safe performance and service life of saw chains.
- ✓ Turn the guide bar over regularly to equalize wear. • Replace drive sprockets and guide bars when needed.
- ✓ Clean guide bar grooves and oil port holes regularly.
- ✓ Follow the manufacturer's specifications for type and amount of lubricant on saw chains and guide bars.

Machine Operation:

- ✓ Machines must not be operated with defective parts or components that are necessary for safe operation.
- ✓ During start up, gradually increase saw chain speed to allow enough time for the lubricant to reach the entire chain, especially during winter. • Position and maintain the plane of the guide bar to prevent employee exposures to chain shot.
- ✓ If berms and other obstacles are used to block the path of potential chain shot, ensure that the obstacle will not allow a chain shot to ricochet in an unsafe direction.
- ✓ Process logs close to the ground to reduce the distance chain shot can travel.

Be Safe!