

PART 12: TOOLS, MACHINERY AND EQUIPMENT

MOBILE CHIPPERS

Driven-feed
chippers

12.70

A driven-feed chipper must have a guard chute or apron extending at least 90 cm (3 ft) from the feed rollers and a panic bar to stop the feed rollers.

(1) A driven-feed chipper must have

(a) a feed table that meets both of the following requirements:

- (i) the feed table, including the drop-down extension, if any, must extend at least 150 cm (59 in) from the nip point of the feed rollers;**
- (ii) the total distance from the nip point of the feed rollers to the ground must be at least 210 cm (82 in), as measured along the centre line of the feed table to the lip of the feed table and then vertically from the lip of the feed table to the ground,**

(b) side walls on the feed table, including any drop-down extension, and on the guard chute that are of sufficient height to prevent a worker who is standing on the ground from reaching the feed rollers, and

(c) a feed control bar that is

- (i) located across the top and close to the feed end of the guard chute, and**
- (ii) designed so that a worker endangered by the feed rollers is able to stop or reverse the feed rollers both by**
 - (A) pushing the feed control bar to its forward travel limit, and**
 - (B) pulling the feed control bar to its rearward travel limit.**

(2) No part of a person's body may be on the feed table or in the guard chute unless

- (a) the feed rollers have stopped, and**
- (b) the motor of the driven-feed chipper is turned off and locked out.**

(3) Despite subsection (1), a driven-feed chipper that is in use in British Columbia before February 1, 2012 may continue to be used if

- (a) the driven-feed chipper meets the requirements of subsection (1) (a) and (b),**
- (b) the feed control bar meets the requirements of subsection (1) (c) (i), and**
- (c) the feed control bar is designed so that a worker endangered by the feed rollers is able to stop or reverse the feed rollers by at least one of the means set out in subsection (1) (c) (ii).**

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Explanatory Notes:

Section 12.70 of the Occupational Health and Safety Regulation currently requires driven-feed chippers to have a 90 cm-long “*guard chute or apron*” and a “*panic bar*” to stop the feed rollers. The Board has approved the following changes and rationale in order to enhance worker safety:

“Apron” is replaced in new ss (1) (a)

- The redundant term “*apron*” is deleted and the more common industry term “*feed table*” introduced. “*Feed table*” means the floor of the guard chute plus any hinged drop-down component extending the plane of that floor beyond the guard chute. So although there is some overlap between these components, “*guard chute*” is no longer interchangeable with “*apron*” or “*feed table*”.

Increased Reach Distance Guarding (RDG) requirements in new ss (1) (a), (1) (b), and (2)

- To establish sufficient RDG, the most crucial safeguard in chippers, the new subsection (1) (a) requires the feed table to be at least 150 cm long and the total distance from the feed roller nip point along the feed table and then to the ground to be at least 210 cm. Chipper brands have long manufactured feed tables exceeding these lengths, which are supported by the CSA Z432-04 and ANSI Z133.1-2006 standards.
- Through the new subsection (1) (b), both the guard chute and the feed table, including any drop-down extension, must have side walls of sufficient height to prevent workers who are standing on the ground beside the chipper from reaching the feed rollers. This follows ANSI Z133.1-2006.
- To reinforce RDG, a new subsection (2) prohibits any part of a person’s body from being on the feed table or inside the guard chute of a running chipper. This codifies into law the same requirement published in manufacturers’ operating procedures, section 8.6.11 of the ANSI Z133.1-2006 Standard, section 9.1 of the CSA Z432-04 Standard, WorkSafeBC guidance manuals, and OSHA safety bulletins.

Safety Device: “panic bar” replaced by a dual-stop (or reverse) overhead feed control bar in new ss (1) (c)

- “*Panic bar*” is a confusing term since the safety device which is intended is largely undefined.
- A new subsection (1) (c) defines the required safety device as an overhead feed control bar (following section 5.3.5 of ANSI Z133.1-2006) but goes beyond ANSI in requiring the bar to have a dual-stop (or reverse) capability, i.e., whether pushed or pulled from the feed position to the limit of travel in either direction, the bar must stop or reverse the feed rollers.
- No currently available device can guarantee the safety of a worker who intentionally or unintentionally gets up on the feed table. For example, a worker flat on their front or on their back and pulled by their arm or arms into the feed rollers cannot easily reach any bar, wherever located, and has little chance of survival. But it is believed that when compared to all other safety devices, a dual-stop (or reverse) overhead feed control bar offers the single best overall chance of avoiding the chipper knives to a lone worker who, for whatever reason, is on the feed table and has a body part approaching, at, or beyond the feed roller nip point. Such a worker, by reason of being closer to the feed rollers is by definition at higher risk than a worker standing on the ground and not yet on the feed table but who possibly could be dragged in by brush. The safety strategy should be in front of, and not behind, the worker at direct risk.
- A factor influencing the choice of the dual-stop (or reverse) bar was the near-fatality in 2007 on Vancouver Island. The worker was nearly killed as a result of standing with one foot on the ground, extending the other foot into the chipper, falling backwards and pulling on the push-to-stop bar, effectively holding it in the feed position (instead of pushing it, as had been expected). This incident occurred on a chipper with a very short feed table (only about 30 cm long) which allowed his foot’s

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easy access to the feed roller nip point. A 150 cm long feed table alone might have prevented this incident; however, although feed tables of proper length perhaps greatly lessen the risk, that risk still exists. A worker can overcome the reach guarding distance of 150 cm by getting up on the feed table and extending a foot to push brush toward the feed rollers. Therefore there is still a need for a pull-to-stop (or reverse) function on the feed control bar even when the feed table is of proper length.

- Operational practicality is also a major factor: workers have no incentive to defeat this safety device, and it is already standard equipment on about 80% of new chippers sold into B.C. Unlike all other 'panic' safety devices, it is fully integrated into the chipper's operational feed control mechanism and is not a stand-alone component or prone to 'nuisance trips' by brush and therefore vulnerable to being defeated. Nor does it otherwise tend to reduce productivity by requiring more tasks or by restricting worker movement. Such drawbacks could actually raise risk to workers by inducing more time spent in the danger zone in front of the feed table and by lending a false sense of security.
- Other 'panic' safety devices such as "last chance" pull cables, lower feed stop "bump" bars, or hold-to-run foot pedals, are not precluded in this amendment from being installed on a driven-feed chipper as ancillary options; but they are not required.

Chippers already in BC without dual-stop are grandfathered if meet all other requirements – new ss (3)

- 80% of chippers imported into B.C. after 2003 already have the dual-stop capability. One large manufacturer is strongly opposed to requiring the retrofitting of dual-stop capability onto their pre-2003 chippers, for reasons of cost, engineering effort, legal liability, and loss of incentive to innovate. WorkSafeBC estimates that about 80% of all older chippers without dual-stop capability are already, on average, about 12 years old and will be increasingly withdrawn from service due to mechanical wear after the regulation is brought into force.

Worker safety will be enhanced by these changes.