

Safety Aspects of Lawn Mowers

The walk-behind power lawn mower is a cutting machine and it is one of the most dangerous products available to the consumer. According to the Consumer Product Safety Commission (CPSC), approximately **37,200 emergency room treated injuries** occur each year to lawn mower operators. Finger and toe amputations, fractures, lacerations and contusions are examples of injuries to an individual who accidentally comes into contact with the power mower's moving blade. The estimated hospital and medical treatment costs, not including monetary compensations for pain and suffering, are \$254 million.

Many injuries may be prevented by having proper shields and guards included in the mower's design and by educating the consumer in safe operating practices for a walk-behind power lawn mower.

One should be aware of the safety features when purchasing a new or used power lawn mower. The CPSC requires that all walk-behind power lawn mowers manufactured after December 31, 1979, including the rotary and reel-type, have a **warning label** stating "Danger--Keep Hands and Feet Away" (Fig. 1). The label should be placed as to be readily noticeable to the operator and remind him of the dangers associated with a mower's moving blade.

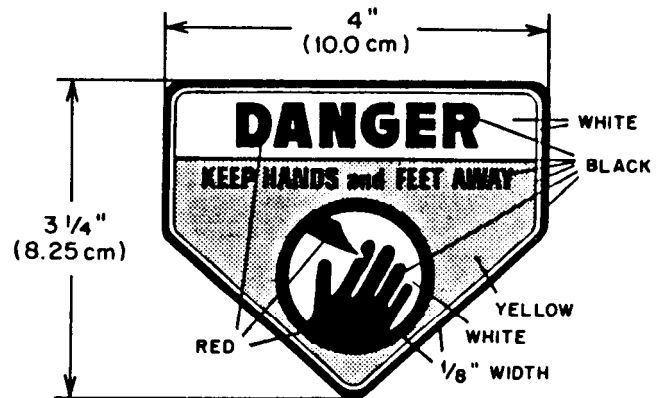


Fig. 1

Rotary mowers manufactured after June 30, 1982 must meet additional safety performance requirements as mandated by Federal law. These requirements specify **shields** are to be installed on the bottom deck of the mower. The shields must be adequate to prevent the operator's foot or any other body part from coming in contact with the moving blade. According to CPSC requirements, these shields must function when the mower is operated over raised obstructions and areas with depressions.

The **blade control system** is the most important aspect of the CPSC requirements for rotary mowers. The system prevents the blade from moving, unless the

operator actuates the control. The purpose of the system is to reduce the injuries associated with blade contact by: (1) having a control which must be actuated before the mower's engine can be started (Fig. 2); (2) requiring continual hand contact with the control to keep blade going (Fig. 3); (3) setting a 3-second time limit for the blade to stop when the operator releases the control; and (4) requiring that 'manually started' mowers (those in which the engine stops when the handle control is released) have the 'rope-start' located within 24 inches from the top of the mower handle or have a foot protective shield that extends 360 degrees around the mower housing.

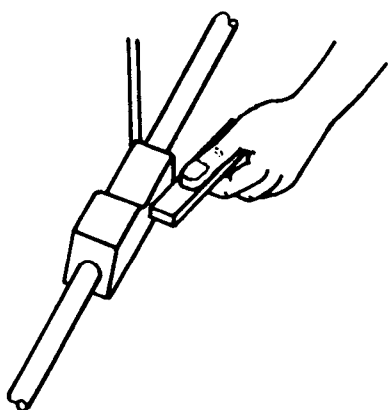


Fig. 2

All walk-behind rotary power mowers should have a secondary control that must be actuated before the mower can be operated.

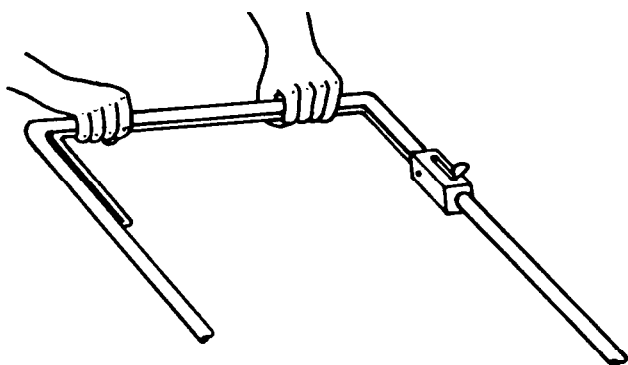


Fig. 3

In order to meet the CPSC requirements, lawn mower manufacturers have introduced three general blade control systems for the rotary mowers. Each system has advantages as well as disadvantages.

(1) Extension Rope Start (ERS)

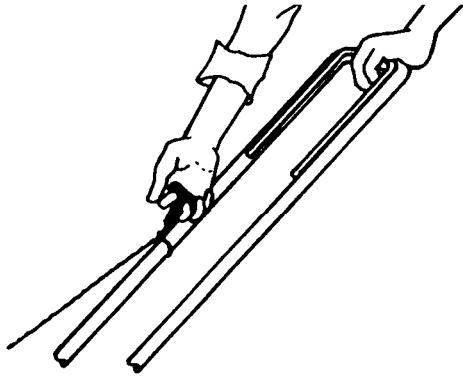
The blade of the mower and the engine will stop when the operator releases the handle control. To restart, the operator must hold onto the handle control while pulling the 'rope start' located within 24 inches from the top of the handle. The 'extended rope start' is the least expensive system. If the operator should stop to pick up debris, move a rock, or empty the grass catcher, etc., he must manually restart the engine (Fig. 4).

(2) Blade Brake Clutch (BBC)

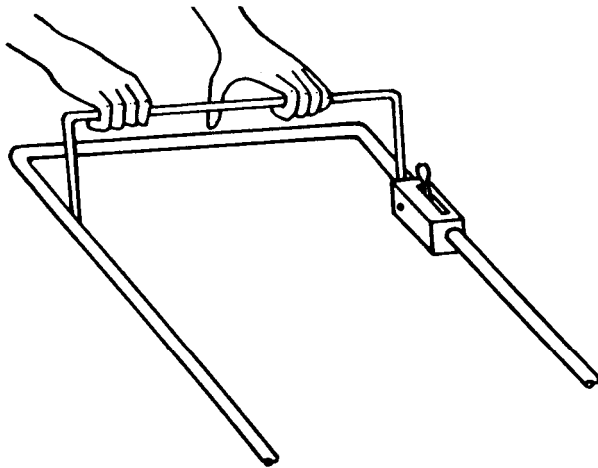
Only the blade will stop when the operator releases the handle control. The engine continues running. Its cost is higher than the ERS system, but the added convenience is worth it (Fig. 5).

(3) Electric Alternator Start (EAS)

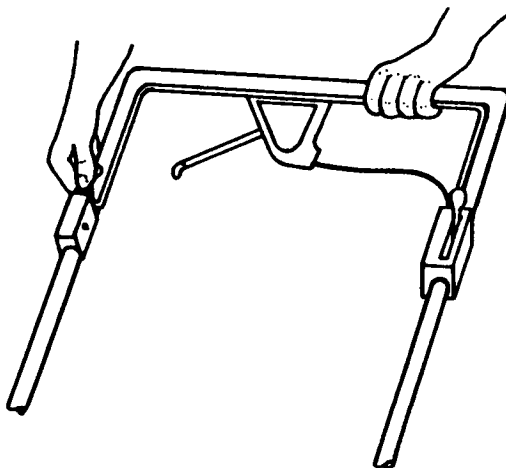
This system requires the operator to maintain contact with the handle control at all times. When the control is released, both the blade and engine will stop. An electric starter is used to restart the engine. The 'electric alternator start' system is the most convenient system. Very little physical effort is required. The disadvantages are high initial cost and a greater number of components which potentially demand higher repair and maintenance costs. The EAS is battery run. Therefore, a constant trickle charge is needed to keep the battery fully charged during storage (Fig. 6).



The ERS System
Fig. 4



The BBC System
Fig. 5



The EAS System
Fig. 6

Another factor to consider in purchasing a new power lawn mower is the voluntary noise labeling program, effective 9-1-80. For each particular mower model, all participating manufacturers will include a hang tag stating a noise level rating. In this noise level rating system, "the lower the number, the quieter the mower."

SAFELY OPERATING THE WALK-BEHIND LAWN MOWER

Preparation:

- * Carefully read the owner's manual. Be familiar with the placement of mower's controls and correct operating procedures.
- * Wear close-fitting clothes and sturdy non-slip shoes (no tennis shoes, or flip-flops).
- * Check mower for any loose nuts, bolts or components. Adjust wheels and cutting height to insure efficient mowing, and safe operating heights for unlevel or bumpy ground surfaces.
- * Fuel the mower in an open area and wipe up any gasoline spills. Discard rags in a covered container, made especially for flammable materials.
- * Inspect the area to be mowed and remove any foreign objects such as stones, sticks, bones, etc. Any object that is picked up by the rotating blade may travel at speeds of up to 170 miles per hour, causing injury to these people and pets it strikes.
- * Be aware of obstructions, such as stumps or pipes, in the area to be mowed.
- * No mowing should be done on a wet lawn. Wet grass is slippery and may cause slips and falls, resulting in serious personal injury. The mower's

blade and discharge chute are easily clogged by wet grass.

- * Keep the mowing area clear of people--especially young children and pets. Shut down the mower whenever others are in the vicinity, especially when they are on the side of the discharge chute.
- * Electric mowers must be properly grounded. Use only 3-wire extension cords plugged into a 3-wire outlet. Never use an electric mower on a wet lawn.

Operation:

- * Start the mower outdoors. Remember to keep hands and feet away from the cutting blade and discharge chute area.
- * Always push the mower, never pull it towards you--you could slip and your foot may go under the mower and into the whirling blade.
- * Remember to mow across a slope--never up and down. Slopes that are excessively steep should not be mowed with a walk behind power lawn mower.
- * Stop the blade when crossing gravel drives, walks or roads.

- * Make sure the blade and all moving parts have come to a complete stop before cleaning, repairing or inspecting. Always disconnect the spark plug wire before rotating the blade to prevent accidental restarting.
- * When a foreign object is struck by the rotating blade, stop the mower, remove the wire from the spark plug, and inspect the mower for any damage.
- * Repair all damaged areas before restarting and operating the mower.
- * Vibration is a sign of trouble. Stop the engine and immediately check for the cause.

Maintenance:

- * Always keep mower clean and in good running condition.
- * Wipe off all excess oil, grass or leaves, which could cause a fire or explosion in the engine.
- * Sharpen blade when necessary--check operator's manual.
- * Keep all nuts, bolts, and screws tight.
- * Service according to instructions in operator's manual.



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