

**CMS 100-2**  
**CHIPPER/MULCHER/SHREDDER**  
**Operation, Safety & Maintenance Instructions**



# SAFETY PRECAUTIONS FOR CMS 100 USERS

## Outdoor Power Equipment Institute Recommendations








### WARNING TO PURCHASERS OF INTERNAL COMBUSTION ENGINE EQUIPPED MACHINERY OR DEVICES:

The equipment which you have purchased does not have a spark arrester muffler. If this equipment is to be used on any forest and brush covered land or grass covered unimproved land, the law may require that a spark arrester muffler be installed and be in effective working order. The spark arrester must be attached to the exhaust system and comply with local authorities by-laws.



## USE COMMON SENSE AND PLENTY OF IT

- 1)  **DO NOT** allow any person to operate the Chipper/Mulcher/Shredder without first reading and understanding the safety precautions and operating instructions manual. Also read and understand the engine manual. **KNOW THE CONTROLS AND HOW TO STOP THE CHIPPER/MULCHER/SHREDDER QUICKLY IN AN EMERGENCY.**
- 2) **NEVER** allow children to operate the Chipper/Mulcher/Shredder.
- 3) **ALWAYS** wear protective clothing when operating the Chipper/Mulcher/Shredder. This includes, but is not limited to: safety glasses, loose fitting gloves, steel capped boots and hearing protection. **NEVER** wear loose fitting clothing or jewellery when operating the Chipper/Mulcher/Shredder. Keep all clothing away from moving parts. Items could become caught in the machine, resulting in injury.
- 4) **ALWAYS** operate the Chipper/Mulcher/Shredder in a well lighted area.
- 5) **ALWAYS** operate Chipper/Mulcher/Shredder on level ground only. Keep your work area clear and free of debris. Never attempt to move the Chipper/Mulcher/Shredder over uneven or hilly ground without a tow vehicle or adequate help. This machine should be operated only upon a level surface.
- 6) **NEVER** operate the Chipper/Mulcher/Shredder when fatigued. **ALWAYS BE ALERT!** If you get tired while operating the Chipper/Mulcher/Shredder, take a break. If you have any type of physical or mental condition that may be aggravated by strenuous work, check with your physician before you operate this equipment. **NEVER** operate the Chipper/Mulcher/Shredder under the influence of medication, alcohol or drugs.
- 7) **DO NOT** allow other persons near the Chipper/Mulcher/Shredder. It is up to the operator to keep bystanders and animals a minimum of 3 metres away from the machine while in operation.
- 8)  **NEVER PUT YOUR HANDS, FEET, FACE OR ANY OTHER PART OF YOUR BODY INTO EITHER OF THE FEED HOPPERS. Use a stick, not hands, to push limbs into the shredding and chipper hopper.**
- 9) **NEVER** remove the guarding attached to the shredding hopper. This protective device minimises material flyback and must be in place at all times during operation. **NEVER** use the chipper with the chipper hopper removed.
- 10) **DO NOT** leave the machine unattended while the engine is running.
- 11) **DO NOT** overspeed the engine or alter the governor settings. Excessive engine speed is dangerous and will shorten engine life.
- 12)  **NEVER** operate the Chipper/Mulcher/Shredder in an enclosed area. Engine exhaust contains carbon monoxide, an odourless and tasteless poison.
- 13)  **STOP** the engine and disconnect the spark plug lead(s) and allow engine to cool before inspecting or performing maintenance.
- 14) **REFUELLING**  

  - \* Shut off engine. **DO NOT REFUEL AN ENGINE WHILE OPERATING!**
  - \* Allow engine to cool. Minimum 5 minutes.
  - \* **USE UNLEADED FUEL ONLY. Use clean, fresh unleaded fuel.**
  - \* **Do not mix oil with unleaded fuel.**
  - \* Do not over-fill fuel tank. Allow space for fuel expansion.
  - \* Do not smoke.
  - \* Allow no naked flame or hot material in refuelling area.
  - \* Use only approved fuel containers and funnels. Remember, fuel is a potential hazard.
  - \* Refer to engine owners manual for full details.




# OPERATING INSTRUCTIONS

## TRANSPORT

- 1) **WARNING:** Do not exceed 60 kms per hour when towing.




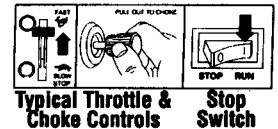
## BEFORE USE

- 1)  **WARNING:** Before starting engine, inspect the chipper intake hopper and mulching shredding chamber and remove any foreign debris or branches, stones, cans, nails sweepings, wire, etc.

## OPERATION

- 1) Familiarize yourself with the Chipper/Mulcher/Shredder and its controls.
- 2) Wear safety glasses or helmet and visor combination, loose fitting gloves, and hearing protection.
- 3) No foreign objects such as stones, steel, cans, glass, wire, rope or nails should be fed into the machine, as damage will occur.

- 4)  Open fuel shut-off valve, if engine is equipped. Move choke control to CHOKE or START position. Note: Choke must fully close. Move throttle control to RUN or FAST position. Turn key to "ON" position. Operate engine in FAST position.



- 5) **SHREDDER HOPPER** (See Figure 1) Four rows of hammers shred material until it reaches such size to allow it to pass through the discharge screen. The discharge screen retains the material within the mulcher shredder chamber for several seconds until the free-swinging hammers have rotated several times. The number of cuts by the hammers and retention time within the chamber varies with different types of organic material.

- 6) **CHIPPER CHUTE** (See Figure 1) Branches are fed into the side hopper for chipping. One at a time if they are thicker than 50mm, several together if of small diameter. The throat opening is approximately 135 mm square. Some side shoots or side branches may have to be trimmed from the main stalk before chipping. Short stubs of branches may be pushed through the chipper section with the next branch. **NEVER ASSUME YOU KNOW WHERE THE BLADE IS. DO NOT PUSH BRANCHES IN BY HAND. BE SAFE – ALWAYS KEEP YOUR HANDS AWAY FROM THE CHIPPING BLADE.**

- 7)  **CAUTION: IF SHREDDER CHUTE OR MULCHER CHUTE CLOGS WITH MATERIAL, STOP THE ENGINE IMMEDIATELY TO PREVENT CLUTCH DAMAGE.**

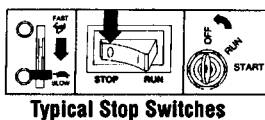
- 8) Do not allow an accumulation of processed material to build up under the discharge area of the shredder as this will prevent discharge and will result in clogging.

- 9)  **NEVER ALLOW YOUR HANDS OR ANY PART OF YOUR BODY OR CLOTHING INSIDE THE FEED HOPPER OR DISCHARGE AREA OF THE MULCHER/SHREDDER.**



- 10) **ALWAYS STAND CLEAR OF THE DISCHARGE AREA WHEN THE MACHINE IS IN USE.** (See Figure 1)

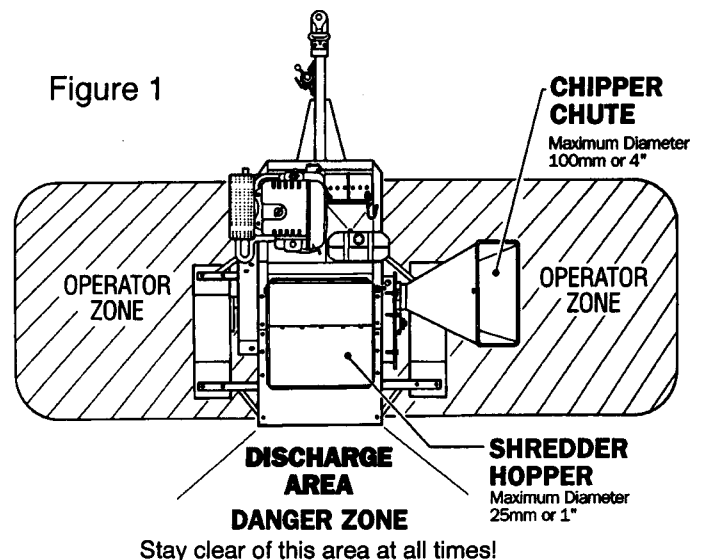
- 11) Keep your face and body away from the intake hoppers to avoid being struck by any material that may bounce back. Do not over-reach. Keep proper balance and footing.

- 12) **Stop Engine:** Do not move choke control to CHOKE position to stop engine. Backfire or engine damage may occur. Move throttle control to SLOW position, and turn key to OFF.



## AFTER USE

- 1)  Turn fuel tap to "OFF" position.
- 2)  Allow machine to cool down.
- 3) Clean with warm soapy water. Ensure no water enters the carburettor.





# BASIC DESIGN PRINCIPLE

Before operating the Chipper/Mulcher/Shredder, you should first understand the basic principle of design.



Whenever you operate your CMS 100, the wearing of gloves, hearing protection and safety glasses is required. If necessary to push material into the shredding chamber, use a wooden stick. Do not use hands or non-organic implements.

## MULCHER/SHREDDER

Adjust the discharge flap (0601-0006) to direct the discharge down and away from the shredder. The discharge end of the shredder body has three drilled holes in each side through which passes a flap rod. The loose end of the plate rests over this rod providing three angles of discharge. **Keep clear of discharge area at all times.**

As engine ignition begins, the engine shaft operates freely until approximately 1400-1600 rpm. The centrifugal clutch engages at this time and begins driving the rotor. The rotor consists of four pins with 60 hammers – four rows of hammers cutting or beating material until it reaches a size to allow it to pass through the discharge screen. The discharge screen retains the material within the mulcher/shredder chamber for several seconds until the free-swinging hammers have rotated several times. The number of cuts by the hammers and retention time within the chamber varies with each organic material.


When viewed from the pulley side of the shredder body, the rotor runs counterclockwise. This action pulls materials into the mulching/shredding chamber. Short stalks (bean plants) and long stalks (sweet corn) sod and similar materials should be fed into the hopper **slowly**. This will prevent the hammermill pulling the complete stalk into the chamber, wrapping the material around the rotor shaft and stalling the mulcher/shredder. When feeding stalks or trimmings by hand, be certain to keep your hands away from the rotor and hammers.

**Remember – technique and understanding is required to successfully shred or grind the variety of materials available to you for compost.**

## CHIPPER

Branches are fed into the side hopper for chipping. One at a time if they are thicker than 50mm, several together if of small diameter. The throat opening is approximately 135 mm square. Side shoots or side branches may have to be trimmed from the main stalk before the chipping process. Short stubs of branches may be pushed through the chipper section with the next branch. **Never assume you know where the blade is! Do not push short branches in by hand. Be safe and always keep your hands away from the chipping blade.**

## GENERAL

1. When feeding material into the chipper/mulcher/shredder be careful that pieces of metal, glass, wire, rope, rocks, cans or other non-organic or foreign objects are not included.
2. Do not allow an accumulation of processed material to build up under the discharge of the mulcher/shredder as this can prevent material from discharging and will result in clogging.
3.  Never allow your hands or any part of your body or clothing inside the feed hopper or discharge area of the mulcher/shredder.
4. Keep all protective guards on the machine and deflectors in place and in good working condition.
5. Always stand clear of the discharge area when the machine is in use.
6. Keep your face and body away from the feed hopper to avoid being struck by any material that may bounce back. Do not over-reach, keep proper balance and footing.
7. Do not transport the machine with the engine running.
8. Do not refuel the engine while it is hot, warm or running.

**NEVER USE THE CHIPPER/MULCHER/SHREDDER FOR ANY OTHER PURPOSE THAN CHIPPING AND SHREDDING ORGANIC YARD DEBRIS OR PAPER. IT IS DESIGNED FOR THIS USE ONLY AND ANY OTHER USE MAY CAUSE SERIOUS PERSONAL INJURY OR DAMAGE TO THE MACHINE.**

## **SAFE ENVIRONMENT**

Use the Chipper/Mulcher/Shredder in a well lit area only. Never use the Chipper/Mulcher/Shredder on slippery, wet, muddy or icy surfaces. **Safe footing** is essential to prevent accidents.

Only operate the Chipper/Mulcher/Shredder on **level ground**. Never on a hillside or incline. Keep your work area clear and free of debris so that you don't stumble over it. Never move the Chipper/Mulcher/Shredder over uneven or hilly ground without a tow vehicle or adequate help.

## **SAFE OPERATOR**

**USE ONLY** on a level earthen surface. Make sure the unit is level and not tilted up or down by the jockey wheel.

**NEVER** put your hands, feet, face or any other part of your body into either of the feed hoppers (Shredder or Chipper). When chipping, never allow your hands to enter the chipper hopper. **Use a stick**, never a hand to push limbs into the chipper hopper.

**NEVER** remove the guarding attached to the shredding hopper. These protective devices prevent flyback and must be in place at all times during operation.

**NEVER** operate the Chipper/Mulcher/Shredder while under the influence of medications, drugs or alcohol. A clear mind is essential for safety.

**NEVER** allow anyone who is tired or otherwise not alert to operate the Chipper/Mulcher/Shredder.

## **SAFE APPAREL**

**NEVER** wear loose clothing or jewelry that can be caught in moving parts of the Chipper/Mulcher/Shredder and pull you into it. Keep all clothing away from moving parts. Wear proper head gear to keep hair away from moving parts.



**Always** wear safety glasses, loose fitting gloves and hearing protection while operating the Chipper/Mulcher/Shredder. A chip could fly out and hit you in the eye. Be sure your glasses fit properly and your gloves do not have loose cuffs or drawstrings.

**DAMAGE TO THE UNIT RESULTING FROM ANY USE OTHER THAN SHREDDING AND CHIPPING ORGANIC MATERIAL IS YOUR RESPONSIBILITY.**

**No sticks or branches larger than 1 1/2" or 40 mm diameter into the Large Mulcher/Shredder Hopper**

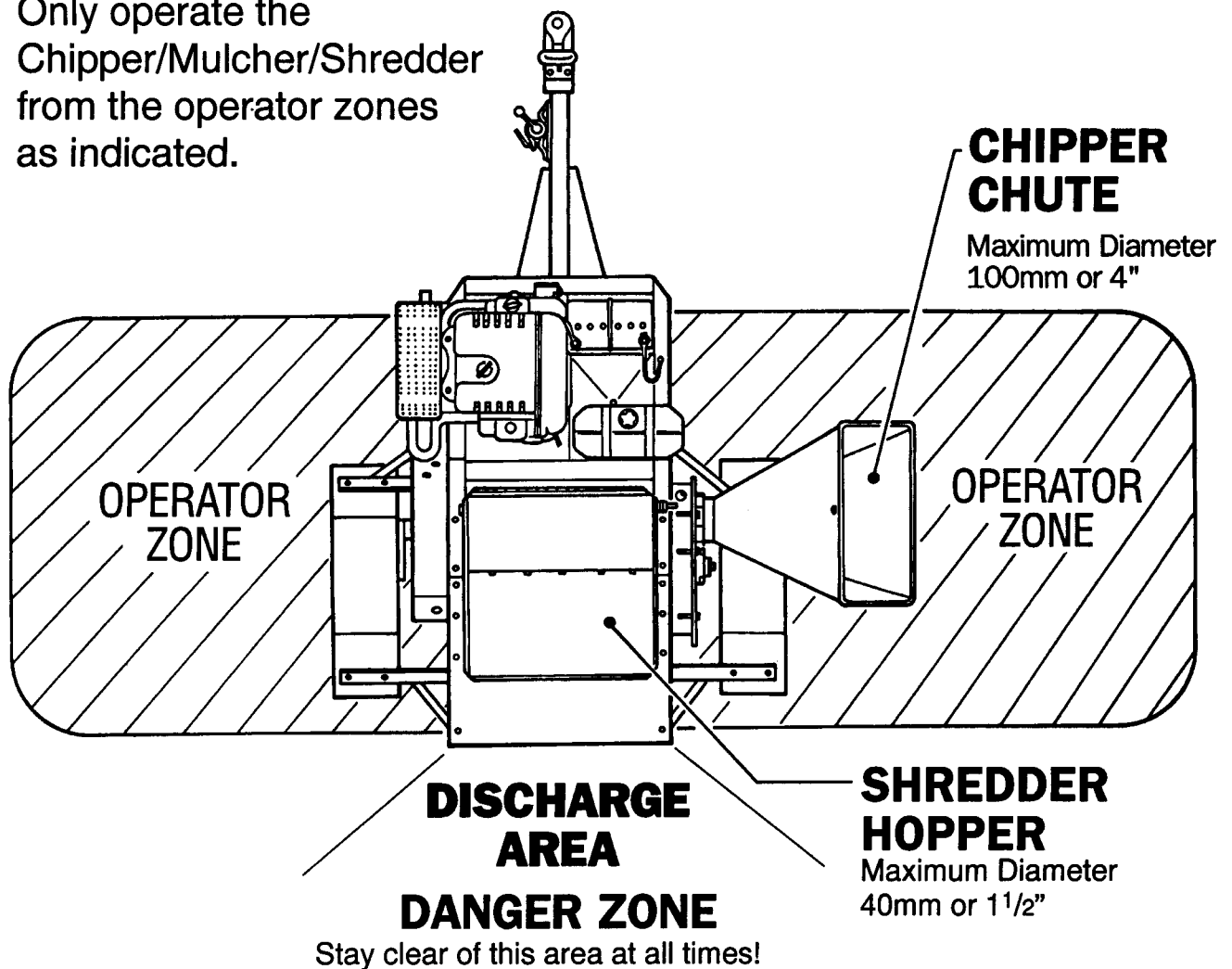


**THIS MACHINE IS CAPABLE OF INFLICTING SERIOUS INJURY IF OPERATED IMPROPERLY. READ WARNINGS AND CAUTION.**

1. The operator of this machine must wear safety glasses, hearing protection and loose fitting gardening or work gloves at all times while operating this chipper/mulcher/shredder.
2. Wear proper work apparel: avoid loose clothing such as skirts or loose sleeves.
3. Children must never be allowed to operate this machine.
4. This machine should never be operated in the vicinity of children, pets, or bystanders.
5. This machine should be operated only upon a level, earthen surface.
6. Never run this machine in an enclosed area. Engine exhaust contains carbon monoxide which is an odourless, tasteless and poisonous gas.
7. Keep hands and face away from feed hopper and discharge area. Read operating section carefully.
8. Do not remove the plastic shield or curtain inside the shredding or the chipping hopper. These guards prevent fly-back and should be intact at all times when mulching or chipping. These are protective guards.



Only operate the  
Chipper/Mulcher/Shredder  
from the operator zones  
as indicated.



**Know** the controls and how to shut the chipper/mulcher/shredder down in an emergency.  
**Never** clear the discharge area with hands, feet, or any other part of your body.  
**Never** clear the discharge area while the Chipper/Mulcher/Shredder is running.  
After unit is shut off, use a long handle tool to clear the area.