

*Operating Instructions for*

# **General Maxi-Rooter™**

**For 3" through 10" lines (75mm – 250mm)**

Your Maxi-Rooter is designed to give you years of trouble-free, profitable service. However, no machine is better than its operator. We, therefore, suggest you read these instructions through carefully before using your machine on the job. This will enable you to operate your Maxi-Rooter more efficiently and more profitably. Failure to follow these instructions may cause personal injury to operator or damage to equipment.

## **GENERAL SAFETY INFORMATION**

**WARNING! Read and understand all instructions.**

Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury. Call General's customer service department at 412-771-6300 if you have any questions.

## **SAVE THESE INSTRUCTIONS!**

### **Work Area Safety**

- **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

### **Electrical Safety**

- **Grounded tools must be plugged into an outlet, properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with UL approved tester or a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user. Machine must have properly functioning ground fault circuit interrupter on power cord.
- **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
- **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.



- **Use only three-wire extension cords which have three-prong grounding plugs and three-pole receptacles which accept the tool's plug.** Use of other extension cords will not ground the tool and increase the risk of electric shock.
- **Use proper extension cords.** Insufficient conductor size will cause excessive voltage drop and loss of power.
- **Before using, test the Ground Fault Circuit Interrupter (GFCI) provided with the power cord to insure it is operating correctly.** GFCI reduces the risk of electric shock.
- **Extension cords are not recommended unless they are plugged into a Ground Fault Circuit Interrupter (GFCI) found in circuit boxes or outlet receptacles.** The GFCI on the machine power cord will not prevent electric shock from the extension cords.
- **Keep all electric connections dry and off the ground. Do not touch plugs or tools with wet hands.** Reduces the risk of electric shock.

### **Personal Safety**

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
- **Avoid accidental starting. Be sure switch is off before plugging in.** Plugging in tools that have the switch on invites accidents.
- **Remove adjusting keys or switches before turning the tool on.** A wrench or key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

### **Tool Use and Care**

- **Use clamp or other practical way to secure and support the work piece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
- **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventative safety measures reduce the risk of starting the tool accidentally.
- **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
- **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
- **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.
- **Keep handles dry and clean; free from oil and grease.** Allows for better control of the tool.

## Service

- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified repair personnel could result in injury.
- **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

## Specific Safety Information

- **Wear leather gloves provided with the machine. Never grasp a rotating cable with a rag or cloth glove.** Could become wrapped around cable and cause serious injury.
- **Never operate machine with belt guard removed.** Fingers can get caught between belt and pulley.
- **Do not overstress cables. Keep gloved hand on the cable for control when machine is running.** Overstressing cables because of an obstruction may cause twisting, kinking, or breaking of the cable and may result in serious injury.
- **Position machine within two feet of drain opening.** Greater distances can result in cable twisting or kinking.
- **Machine is designed for one-person operation.** Operator must control foot switch and cable.
- **Do not operate machine in reverse (REV).** Operating machine in reverse can result in cable damage and is used only to back cutting tool out of an obstruction.
- **Keep hands away from rotating drum and distributor tube. Do not reach into drum unless machine is unplugged.** Hand may be caught in the moving parts resulting in serious injury.
- **Be careful when cleaning drains where cleaning chemicals have been used. Avoid direct contact with skin and eyes.** Drain cleaning chemicals can cause serious burns as well as damage the cable.
- **Do not operate machine if operator or machine is standing in water.** Will increase risk of electrical shock.
- **Wear safety glasses and rubber soled, non-slip shoes.** Use of this safety equipment may prevent serious injury.
- **Before starting each job, check that the cable in the drum is not broken or kinked, by pulling the cable out and checking for wear or breakage.** Always replace worn out (kinked or broken) cables with genuine GENERAL replacement cables.
- **Only use this tool in the application for which it was designed. Follow the instructions on the proper use of the machine.** Other uses or modifying the drain cleaner for other applications may increase risk of injury.

## GROUND FAULT CIRCUIT INTERRUPTER (GFCI)

Your machine is equipped with a ground fault circuit interrupter, which protects you against shock if a short circuit should occur. Check that receptacle is properly grounded. Test the GFCI before each use.

1. Plug into 120-volt receptacle.
2. Push test button. Indicator light will go out and power to machine should cut off.
3. If light does not go out when test button is pushed, equipment should not be used until proper repairs can be made.
4. To restore power after test, push reset button. With the reset button depressed, if the machine doesn't start, stops while running, or if the operator experiences a mild shock, **do not use the machine!** Take it to a motor repair center or return it to the factory for repairs.

**Note:** The section of cord between the wall plug and the GFCI is not in the protected circuit.

### CABLE APPLICATION CHART (Table 1)

Cable Size	Pipe Size	Typical Applications
3/4"	4" to 10"	Large Drains, Long Runs, Roots
5/8"	3" to 6"	Floor Drains, Clean Outs, Roots

### CUTTER APPLICATION CHART (Table 2)

Cutter	Catalog #	Typical Applications
Spear Head	SHD	Starting Drill—Gets water flowing
2" U-Cutter	2UC	For Cutting and Scraping
3" & 4" Side Cutter Blades	3SCB & 4SCB	For Cutting—Scrapes walls of pipe
3" Heavy Duty Saw Blade	3HDB	For Cutting Roots
4" Rotary Saw Blade	4RSB	For Cutting Roots
Large Retrieving Tool	RTR-2	For removing loose objects or broken cables
33" Flexible Leader	LE-2	Helps cable get through tight traps

### SET-UP

1. Place machine within approximately two feet of drain opening. Be sure the Maxi-Rooter Guide Tube (MX-GT) is in place. If you can't get the machine this close to the drain opening, run the cable through the optional Guide Tube Extension (GTE) or a metal guide tube to prevent cable whipping. On manual feed machines, always keep a gloved hand on the cable.
2. Position the air foot pedal for easy accessibility. The machine is designed for one person operation. Be sure you can quickly remove your foot from the pedal in an emergency.
3. Lock the wheels by lifting the brake handle located next to the left wheel and pressing it into the clip.
4. Be sure the motor switch is in the **Off** position.
5. Make sure the Power Cable Feed is set to match the cable size you have selected. If you're using 3/4" or 5/8" cables, the feed should be assembled with the raised side of the lower two caps outward.
6. Select the proper cutting tool (See Cutter Application Chart—Table 2). A good tool to start with is the Spearhead or 2" U-Cutter. If you are having difficulty getting around a P-Trap or close bend, try the LE-2 Flexible Leader. After the line has been opened, follow with larger blades, which scrape the inside edges of the pipe, assuring a real cleaning job.
7. Insert the cutter into the female connector at the end of the cable and tighten the connecting screw and lock washer **firmly** in place.

**Hint:** Some users "mix" their cutters on certain jobs. For instance, they use one 2" Side Cutter Blade with one 4" Side Cutter Blade. This combination is especially good when working through 4" P-Traps.

## OPERATION

1. Before stepping on foot pedal, pull cable from the drum and slide it into the drain as far as it will go.
2. Tighten the knob at top of the Power Cable Feed so that the feed roller presses against the cable. Be sure not to over tighten since this could cause excess cable wear.
3. The feed lever controls the feeding rate and direction of the cable. Move the lever down to feed cable out of drum. The further the lever is moved downward, the faster the cable will feed out. Move lever up to retract cable into drum. When the lever is in the middle (Neutral) position, cable will spin in place.
4. Move the motor switch to the **Forward** position.
5. With a gloved hand on the Guide Tube or cable, depress the air foot pedal to start machine. Feed the cable into the line and against the obstruction with a firm, even pressure. Adjust the feeding rate to the resistance met. Do not force the cable - let the cutter do the work. The job won't go any faster and you could damage the cable.

### **DO NOT FORCE THE CABLE - LET THE CUTTER DO THE WORK.**

6. Don't leave too much slack in the cable since this will cause whipping. If the cable starts to bend or build up too much twist, release pressure on the foot pedal and rotate the drum in the opposite direction to relieve the twist on the cable. Push any excess cable back into the drum and then continue.
7. If you're having trouble getting around tight bends, try putting the machine in reverse while applying steady pressure. Don't do this for more than a few seconds at a time since this could cause tangling in the drum or kinking.
8. If you still can't get around the bend, you're probably using too large a cable. Switch to a 5/8" diameter cable if necessary. (See Cable Application Chart—Table 1)
9. When cable reaches the stoppage, put feed into neutral. Then allow the cable to progress forward slowly, chewing into stoppage as it goes. This slow forward movement will reduce stress on the cable while doing a more thorough cleaning job. A back and forth action often works best.

**Hint:** It's often helpful to have a small stream of water running in the line to wash the cuttings away while the machine is in operation and after.

10. Be careful not to let the cutter get caught in the stoppage as you work through it. This can cause kinking and breaking of the cable. When you feel the cable starting to twist in your hands, stop the machine and pull back. This will free the cutter from the obstruction. Then allow the cable to move forward slowly into the stoppage. Remember, no cutting takes place when the blades stop turning.
11. After the line has been opened, return the cable to the drum with the motor turning **Forward**. This is important to prevent tangling of the cable in the drum or in the line.

**Caution:** Do not use reverse to pull the cable out of the drain. Always run the machine in forward, whether you are feeding the cable into the line or pulling it out. Use reverse only to release the cable if it should become caught in the line.

12. When the cutting tool is near the drain opening, take your foot off the pedal to stop drum rotation. Never retract the cutting tool from drain while cable is rotating. The cable could whip and cause serious injury.

## **IF CABLE GETS CAUGHT IN LINE**

The motor can be reversed to free the cable if it gets caught in line. (Note: if using Power Cable Feed, putting motor in reverse will cause the feed control lever to operate opposite of normal.)

1. Move toggle switch on motor to reverse position.
2. Depress the foot pedal while pulling on the cable.
3. After cable is loose, move toggle switch back into forward position.

USE CAUTION. Running the machine in reverse for more than a few seconds at a time can cause the cable to tangle in the drum.

## **IF CABLE TANGLES IN DRUM**

This is caused by using too much pressure when feeding the cable or feeding the cable into the line while running the machine in reverse. To untangle the cable, rotate the drum in the opposite direction. This will usually get the cable to lie in the drum properly.

If the cable has become badly tangled, which shouldn't occur if used properly, it can be straightened out by removing the distributor tube from the machine. To do this:

1. Remove the drum from machine frame. (See TO REMOVE DRUM below.)
2. Set drum down so that distributor tube is pointing up. Unscrew knob at the back of distributor tube. This unlocks distributor tube from the drum shaft. Be careful not to lose thrust bearing and races attached to knob.
3. Slide the distributor tube off the shaft and out of the drum. The tension of the cable will force the tube to the side of the drum as you pull it out; so keep some pressure against the cable as you pull the tube out. After tube is out, pull out inner drum cage. Pull out enough cable to eliminate the tangle.
4. After the cable has been straightened out, slide the inner drum cage back into place. Then slide distributor tube back so that curved section is adjacent to notch in inner drum cage and back of distributor tube fits over shaft in center of drum. Keep pressing down on distributor tube as you tighten plastic knob with thrust bearing and races. This locks tube into place. You can now put the drum back on the machine.

## **TO REMOVE DRUM**

1. Remove belt guard by loosening knob on top of motor.
2. Press down on motor and slide V-Belt off of drum and motor pulley. Then turn motor to the side, out of the way of the drum.
3. Remove cutter from end of cable. Then unscrew knob behind front post and slide Power Cable Feed off the machine. (If your Maxi-Rooter does not have a Power Feed, loosen the hex head bolts behind the front post cap, then slide the cap forward off the machine.)
4. Loosen knob on rear drum shaft clamp and move to slide, then swing clamp open.
5. Lift drum clear of machine.

## **TO INSTALL DRUM**

1. Hang V-Belt from motor pulley.
2. Put drum on the machine, placing the shaft into rear drum clamp first. Be sure that the hold in the shaft fits over the pin in the clamp.
3. Then put the distributor tube into the front post. It may be necessary to tap the front of the distributor tube until drum drops into place.

4. Slide Power Cable Feed onto feed post guide pins allowing the cable to pass through the feed rollers. Then tighten knob on stud protruding through the back of front post. (If your Maxi-Rooter does not have a Power Cable Feed, slide the front post cap onto the hex head bolts, then tighten them.)
5. Slip the V-Belt under drum. To make it easier to put the V-Belt in place, press down on the motor and slide a screw driver, or similar object into the hole in the motor support guide tube below the back of the motor. This will keep the motor support spring depressed so that it will be easy to slip the V-Belt around the drum. After V-Belt is in place, depress the motor enough to pull out screwdriver.
6. Replace belt guard and tighten knob on top of motor.

### **TO INSTALL CABLE IN DRUM**

To install cable in the drum, simply connect the male end of the cable to the drum connecting cable that is already attached to the drum. Then remove the drum V-Belt and turn the drum clockwise with one hand while pushing cable into the drum with your other hand.

### **MAINTENANCE**

To keep your machine operating smoothly, it is essential that all bearings and distributor tube bushings be lubricated. Oiling moving parts is particularly important where machine comes in contact with sand, grit and other abrasive material.

### **CABLE MAINTENANCE**

To get maximum service from your cables, be sure that they are clean and well oiled. This not only provides running lubrication but greatly extends the life of the cables as well. Some users periodically pour oil directly into the drum. Then, as the drum turns, the cables get complete lubrication. Our SNAKE OIL is ideally suited for this purpose, since it not only lubricates the cables, it deodorizes them as well.

### **FEED MAINTENANCE**

Keep feed free of excessive soil and grit. It is recommended that the feed be flushed with fresh water followed by a light oiling of the moving parts. No disassembly is normally required. Failure to feed can usually be traced to the following possibilities:

**DIRT ACCUMULATION:** Over time, dirt can harden enough to stop roller rotation. Flushing with water followed by liberal oiling can usually restore function. If disassembly is required, proceed as follows:

1. Remove the tension knob, springs and spring plunger. Note the positioning of these parts to ease re-assembly. The top roller can now be removed.
2. Remove the snap rings and thrust washers from the bottom housing cylinders. The bottom rollers can now be removed.
3. Re-assembly is done in reverse order.

**DAMAGED ROLLER:** Excessive use may wear a roller to the point of failure. It is recommended that all three rollers be replaced at the same time (Part # PO-703).

**TANGLED CABLE:** If a cable loops over itself in the drum, it will not feed properly. Remove and reload the cable by hand to restore function. If the cable kinks, it is evidence of abuse and results from the use of too much pressure or use of the wrong size cable for the line. Do not force the cable—Let the cutter do the work.

### TROUBLE SHOOTING GUIDE (Table 3)

<b>Problem</b>	<b>Probable Cause</b>	<b>Solution</b>
Cable kinks or breaks	Operator forcing the cable.	Do not force the cable. Let the cutter do the work.
	Too much slack between machine and drain.	Allow no more than 2 feet between machine and drain.
	Cable used in wrong size drain line.	A cable that is too large or too small a diameter for a line is more likely to kink. Consult Table 1—Cable Applications.
	Cable exposed to acid	Clean and oil cables regularly.
	Cable worn out.	Cable can be repaired using “Quick-Fix” or “Repair Sleeve”. If cable has broken several times, replace it.
Cable tangles in drum	Operator forcing the cable.	Do not force the cable. Let the cutter do the work.
	Machine running in reverse.	Do not run the machine in reverse to retract the cable from the drain. Use reverse only if cable is caught in line.
	Distributor tube frozen.	Lubricate distributor tube bushings.
Drum stops while pedal is depressed. Restarts when pedal is re-depressed.	Hole in pedal or hose.	Replace damaged component.
	Hole in diaphragm switch.	If no problem found with pedal or hose, replace diaphragm switch.
Drum turns in one direction but not the other.	Faulty reverse switch.	Replace switch.
Ground Fault Interrupter trips when machine is plugged in or when foot pedal depressed.	Frayed power cord.	Replace cord set.
	Excess moisture in area.	Remove excess moisture from area.
	Short circuit in motor.	Take motor to authorized service center. (Call General for details.)
	Faulty Ground Fault Interrupter.	Replace Ground Fault Interrupter.
Failure to feed	Cable tangled in drum.	Do not run machine in reverse. Use proper cable size. Consult Cable Application Chart—Table 1.
	Feed misadjusted	If feed tension knob is too loose the cable will slip. If it is too tight the feed rollers will wear prematurely.
	Feed roller frozen.	Clean and lubricate feed rollers regularly. Replace worn rollers.
	Worn cable.	When cable coils wear flat, cable should be replaced.

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