

# General Hot-Shot™

## Operating Instructions

### Model 320 (For use with Copper and Iron Pipe)



Your Hot-Shot 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 the Hot-Shot more efficiently and more profitably. Failure to follow these instructions may cause personal injury to operator or damage to equipment.

**SAVE THESE INSTRUCTIONS!**

# General PIPE CLEANERS

**Before connecting the cables.** Make both pipe connections before plugging unit into receptacle. Make sure all connections are tight to prevent arcing at the clamps. **Loose connections also get hot and reduce current flow. Caution: Uncoil the cables.** Do not leave any cable coiled up or placed on steel objects as the heating in the pipe will be reduced.

# Safety Instructions



## WARNING



Machine must be plugged into properly grounded outlet. Failure to follow instructions may result in serious injury or death.



Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.



Use safety equipment. Always wear safety glasses and rubber soled, non-slip shoes.

### 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

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **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.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

#### Electrical Safety

1. **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.

2. **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.
3. **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
4. **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.
5. **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.
6. **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.
7. **Use proper extension cords.** Insufficient conductor size will cause excessive voltage drop and loss of power.
8. **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.
9. **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

1. **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.
2. **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.
3. **Avoid accidental starting. Be sure switch is off before plugging in.** Plugging in tools that have the switch on invites accidents.
4. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.

5. **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**

1. **Use clamp or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
2. **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.
3. **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.
4. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
5. **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.

### **Tool Service**

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified repair personnel could result in injury.
2. **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.

### **Introduction**

A frozen water pipe can be thawed very quickly by passing low voltage high current electricity through the frozen pipe. **Plastic pipe will not conduct electricity so this method will not work on plastic pipe.** There must be unfrozen water under standard water pressure on one side of the frozen part of the pipe and an open faucet on the other side.

When thawing a frozen section of water pipe, heat the pipe only enough to melt a thin film of ice in the inside of the pipe. **A faucet must be opened** in the unfrozen part of the line down stream from the frozen section. The warmer water above the ice will seep through the melted film and very quickly melt the rest of the ice. The water will start to flow in about 10 minutes if the connections are properly made. Since copper pipe will not heat as fast as steel pipe, allow about a 30 percent longer thawing time. (See Chart)

### **Features**

- The Hot-Shot 320 puts out 320 amps, yet pulls only 14 amps. It can clear 1/2" to 1-1/2" pipes up to 100 ft. long. The Hot-Shot 400 can clear 1/2" to 1-1/2" pipes up to 175 ft. long.
- The Hot Shot 400 features a "High/Low" switch to allow the unit to be used on either a 15 amp or a 20 amp outlet. When the "High/Low" switch is in the "Low" position, the unit will draw 14 amps and supply 320 amps of thawing power. When in the "High" position, it will draw up to 20 amps and supply 400 amps of thawing power.
- Both units have a built-in thermal protector. If the internal temperature reaches a critical level, the Hot-Shot will automatically shut down.

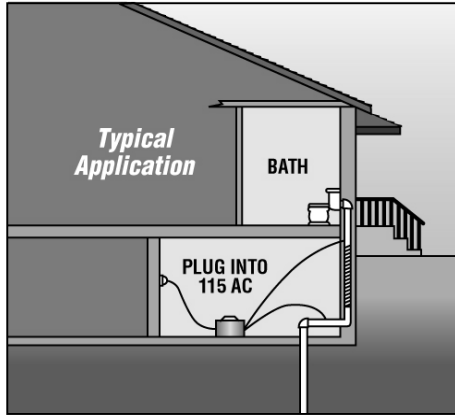
### **Warnings**

- The Hot-Shot 320 requires a 115 volt AC grounded 15 amp circuit.
- Be sure the unit is plugged into a **properly grounded** receptacle. If in doubt, check receptacle before plugging in unit.
- If the power cord supplied with the unit is not long enough, be sure to use a grounded heavy duty extension cord that is in good condition. Using lighter cords can result in severe power loss and overheating.
- There is a possibility that the output current of the unit may be transferred into the electrical service, either at the house being thawed, or at a remote location. Therefore, all grounds (i.e. electric service, telephone, and cable TV grounds) must be disconnected, both at the house being thawed and all houses on the same distribution transformer.
- Do not leave unit unattended while thawing. Do not leave unit operating overnight.

### **Operating Instructions**

1. Isolate the frozen section of pipe. Inside a house, this is done by opening faucets and back tracking the pipes. The frozen section will usually be in the outside walls, near doors, windows and in crawl spaces under floors. If all the water outlets in the house fail to operate, the line from the curb valve to the house is frozen.
2. House service pipes usually have to be thawed by connecting one cable to the exposed pipe in the kitchen or basement and other cable to the curb service. At the curb, make the connection to the valve at the bottom of the service riser, using the curb key. Do not connect the cable to the adjustable ground level cover as it is a poor connection to the valve.

3. Connect the cables on either side of the frozen section so that they complete an electric circuit. The cable clamps must be at least 10 ft. apart. **Caution: The cables get hot!** Keep them clear of rugs and finished floors that can be damaged by heat.



4. Good connections are required. Clean all pipes **before** connecting the cables. Make both pipe connections before plugging unit into receptacle. Make sure all connections are tight to prevent arcing at the clamps. Loose connections also get hot and reduce current flow. **Caution: Uncoil the cables.** Do not leave any cable coiled up or placed on steel objects as the heating in the pipe will be reduced.

5. If a good connection is made, the pipe and cables will vibrate with a 60 cycle hum that you can feel with your hand. After all connections are made and the unit is plugged in, switch the circuit breaker on.

### Some Common Problems

- Cables stay cold. Pipe does not thaw.
  - Do you have power? Check fuses.
  - Is the circuit breaker switched on?
  - Do you have a good connection?
  - Are the pipes clean at the connection?
  - Are both clamps on the same pipe?
  - Has the thermal protector tripped?
  - Is there a rubber coupling in the line?
  - Is there plastic pipe in the line?
  - Has the ice pushed the joints apart?
- Cables get warm. Pipe does not thaw.
  - Are clamps on pipe, not on curb cover?
  - Are the pipes clean under the clamps?
  - Are cables sized properly? (Larger cables must use larger wire size.)
- Cables get hot. Pipe does not thaw.
  - Is there water pressure in pipe?
  - Is the source of water pressure frozen?
  - Is source water pump operating?
  - Do the clamps cover all of frozen area?
  - Can the current go more than one way from clamp to clamp?

### Thawing Times

The times in the below charts are approximate and under ideal conditions. Actual times will vary depending upon type of pipe, diameter, gauge, and length of cable, etc.

**Note:** Since copper pipe will not heat up as fast as iron pipe, allow about a 30 percent longer thawing time.

**Note:** Longer cables must also be a larger gauge. If smaller diameter cables are used, current will be reduced.

#### 320 AMP Output

Pipe Length	Thawing Time	
	Iron Pipe	Copper Pipe
20 ft.	9 minutes	12 minutes
40 ft.	12 minutes	16 minutes
50 ft.	14 minutes	19 minutes
60 ft.	17 minutes	23 minutes
80 ft.	24 minutes	32 minutes
100 ft.	30 minutes	40 minutes

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