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INTRODUCTION

1. GENERAL

a. This manual has been prepared especially for use in familiarizing personnel with the design, operation and maintenance of TRINDL Pipe Thawers. In some cases, the contents of this publication are generalized. All information should be given careful consideration to assure optimum performance and service of the equipment.

b. When Instructions pertain to only one model, that Model number will be noted before the Instructions.

2. RECEIVING - HANDLING

a. To prepare the pipe thawer for installation several items should be checked. Clean all packing materials from around the unit and carefully inspect for damage which may have been caused by shipping. Any claims for loss or damage which may have occured in transit must be filed by the buyer with the carrier. Copy of the bill of lading and freight bill will be furnished on request, if occasion to file claim arises. Be sure to read all the instructions before attempting to operate. When requesting information concerning the pipe thawer, be sure to furnish Serial, Model and Code numbers.

3. DESCRIPTION

Both thawers are designed for electrically thawing of frozen water pipes.

The P300TX has two heat taps, low tap for short lengths of small pipe, and a high tap for thawing longer lengths of larger pipe (See Chart below).

The Q300 PT has two heat taps, low tap for short lengths of small pipe, medium tap for thawing medium lengths of medium pipe, high tap for longer lengths of larger pipe. (See Chart below)

Q300PT

CONTROL CHART				
PIPE →	STEEL ⅛"-½"	STEEL ½"-1"	STFEL 1"-1½"	COPPER LEAD
LOW RANGE	5'-10'	8'-20'		10' & OVER
MED RANGE	5'-15'	10'-20'	20'-30'	
HIGH RANGE		20' & OVER	20' & OVER	
CAUTION:	POSSIBLE REMOTE FIRE HAZZARD READ INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING MACHINE			

P300TX

CONTROL CHART			
PIPE →	STEEL ⅜" - ¾" DIA.	STEEL 1" - 1 ½" DIA.	COPPER & LEAD
LOW TAP	5'-19'	8'-29'	10' & OVER
HIGH TAP	20' & OVER	30' & OVER	

SPECIFICATIONS	
INPUT VOLTS AC	120
INPUT AMPS. AC	15.0
SINGLE PHASE	HZ.60
LOW RANGE 2 VOLTS, 100 AMP	
MED. RANGE 4 VOLTS, 200 AMP	
HIGH RANGE 6 VOLTS, 300 AMP	

INPUT		OUTPUT	
VOLTS	115	LOW TAP	215A. CONT.
AMPS	15		
FREQ.	60Hz	HIGH TAP	300A. CONT.
PHASE	1		
MAXIMUM OUTPUT VOLTAGE = 7 V.O.C.			

4. SAFETY

Before the equipment is put into operation, the safety instructions of this manual should be read completely. This will help avoid possible damage or injury due to misuse or improper applications.

The following definations apply to CAUTION, IMPORTANT, and NOTE blocks found throughout this manual.

CAUTION

Under this heading installation, operating, and maintenance procedures or practices will be found that, if not carefully followed may create a safety hazard to personnel.

IMPORTANT

Under this heading installation, operating, and maintenance procedures or practices will be found that if not carefully followed may result in damage to equipment.

NOTE

Under this heading explanatory statements will be found that need special emphasis to obtain the most efficient operation of the equipment.

5. INSTALLATION

CAUTION: Possible remote fire hazard. Operate only under the guidance of the local electrical codes. Read Caution sections of the instructions before operating.

Before plugging into the line, be sure that your electrical service agrees with specifications on the name plate of the machine. Do not connect to a circuit that is carrying other heavy loads. Heavily loaded lines are apt to blow fuses when the unit is operating.

All 115 volt units are supplied with the input supply cord already wired to the proper input terminals and are ready for use from a 110 volt to 120 volt 60 cycle, single phase power supply of at least 15 ampere capacity. The unit is protected by a 15 ampere fuse.

NOTE

This is a three-wire cable in which two of the wires carry the current to the machine and the third wire is for grounding purposes. This grounding wire may be green in color and is called the EQUIPMENT GROUND wire. It attaches to the machine frame at one end and the building electrical ground through the grounding blade of the plug at the receptacle end. Normally there is no electrical current flowing through this wire. In the event that the plug is removed or replaced , be sure to connect the two current-carrying wires to the flat blades on the new plug and the grounding wire to the third blade on the new plug.

IMPORTANT

The grounding wire must be attached and properly grounded at all times as a safety precaution in case of an insulation failure in the machine.

CAUTION

Do not attempt to defeat the protection provided by this equipment ground lead.

6. PROCEDURE AND OPERATION

PROCEDURE FOR THAWING PIPES

Refer to the CONTROL CHART for the proper range setting.

(a.) Be sure that the proper terminal setting is used for the length and size of pipe to be thawed in accordance with the CONTROL CHART.

(b.) Be sure to thoroughly clean the pipe which is to be thawed at the points where the Pipe Thawer Clamps are to be attached or fastened. The pipe must be absolutely free of paint, rust corrosion, etc., so good electrical contact or connection is made at these points.

(c.) When thawing a frozen length of pipe, always start at the faucet end, making certain that the faucet is open to allow for expansion or steam. After the first section has been thawed, attach the clamps to the adjoining section of the pipe and proceed in this manner until the entire length of pipe from faucet to water source has been thawed.

(d.) Be sure to follow the CONTROL CHART column indicated for copper and lead when connecting the Pipe Thawer to copper or lead pipes.

NOTE - If the fuse should blow, whenever possible connect a longer length of pipe between the two pipe clamps, insert a new fuse, and again plug the Pipe Thawer into the line.

INSTRUCTIONS FOR UNDERGROUND FROZEN PIPES

For underground pipes, it is necessary to connect one cable on each side of the frozen portion of the pipe. For example: one cable can be connected in the basement of the building, while the other cable can be connected to the valve in the curb valve box outside.

Sometimes a length of 3/4" or 1" copper pipe (one end flattened) is pushed down into the valve box to make connection into the pipe or valve.

Another method is to connect the two output cables of the Pipe Thawer to the service inside of two adjoining buildings, providing that they are not to far apart. In this case, keep in mind that the water main running between the two buildings is usually a larger size of pipe and ordinarily not frozen. Due to the larger diameter of the main, most of the heating developed will be concentrated by the smaller diameter service lines running from the main to each of the buildings.

It is also possible to connect one cable to the service inside of the building and the other cable to a hydrant outside providing that the hydrant is not too far away.

WARNING: THAWING HIDDEN PIPE ALSO USED AS ELECTRICAL UTILITY GROUND

Operator must determine that the section being thawed (between clamps) is continuous metal pipe with, no broken joints, no plastic pipe or fittings, or extreme rusty threads. Such conditions that would not allow conductivity thru the pipe may cause the current to flow thru one or more connected electrical ground wires that are connected between clamps. Such ground wire carrying full output of pipe thawer will cause overheating and be dangerous.

7. THAWING LONG SECTIONS OF PIPE USING TWO MACHINES CONNECTED IN SERIES

In cases where it is necessary to thaw longer lengths of pipe, use two PIPE THAWERS with secondaries connected in series. In this way, double the above length of pipe can be handled.

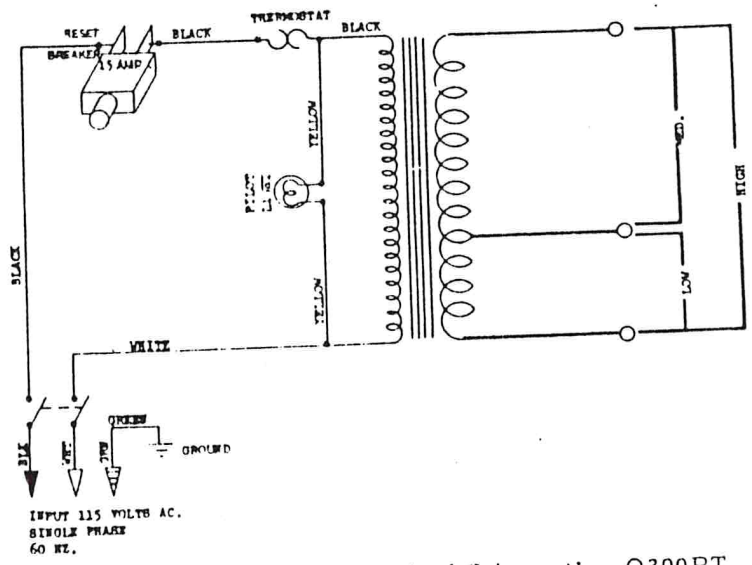
In order to connect TWO PIPE THAWERS in series, first plug both units into an electric outlet. It is preferable to operate machines on a separate circuit to minimize the possibility of blowing fuses in the electric circuit.

After the machines are energized, attach one cable from the common terminal of one unit to one end of the pipe to be thawed. A second cable should be run from the HIGH TAP of the first machine to the common terminal of the second machine. Finally, a cable is run from the HIGH TAP of the second machine to the other end of the pipe.

Before making a permanent connection with this second cable, touch the pipe clamp to the pipe to determine whether the two machines are polarized. If there is a spark between the clamp and the pipe, connect the clamp to the pipe and start thawing.

If there is no spark, interchange the cables on the common and HIGH TAP terminals of one machine only, and recheck as above to be certain that there is a spark between the clamp and the pipe before making the permanent connection for thawing.

TROUBLE	POSSIBLE CAUSE
No output	(a.) Check Reset Breaker. If tripped, reset it.
	(b.) Check connections per instructions.
	(c.) Safety Thermostat in unit has oppened; This means unit has reached maximum temperature and thermostat will close when temperature is down to proper level.



Electrical Schematic Q300PT

10. WARRANTY

The manufacturer guarantees to the original purchaser that this equipment has been thoroughly checked and tested before shipment and is free of mechanical and electrical defects.

Should defects due to faulty material or workmanship develop within one year from date of sale, the equipment will be repaired and put in workable condition free of charge, providing it is returned to our factory or authorized service station TRANSPORTATION PREPAID, after issuance of return goods tags have been made by the factory authorizing such a return.

This guarantee does not cover cables, nor ground clamp, nor is it valid if the item has been misused, abused, or tampered with.

(a.) RENEWAL PARTS

In order that shipment of correct replacement parts for the particular equipment involved can be made, it is absolutely necessary that the following information be supplied with every order.

(1.) Full description of equipment.

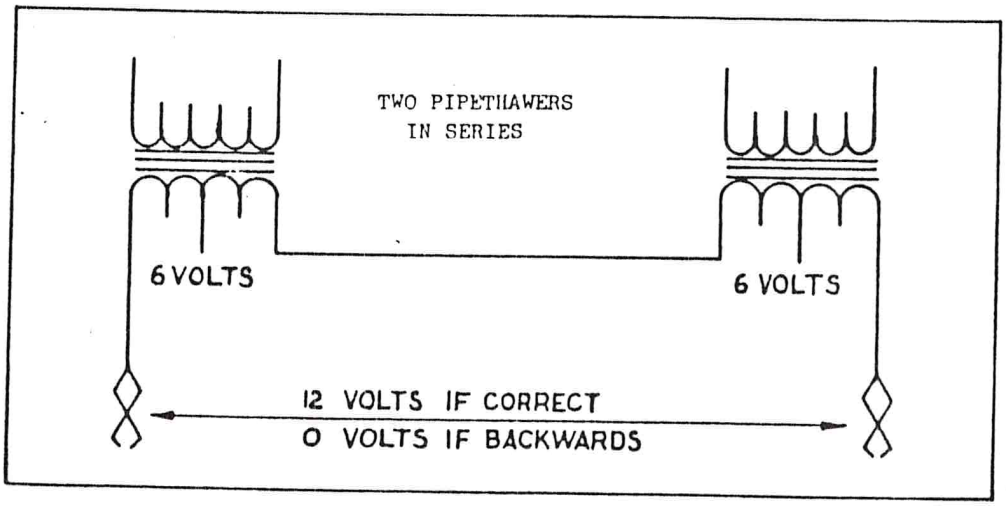
(2.) Stock number, serial number, and model number of equipment.

(b.) MINIMUM BILLING

(1.) The factory maintains a minimum billing of $15.00 net on all parts orders.

CAUTION: When checking per above, make sure there is no combustible material nearby and there is no explosive atmosphere in the vicinity. Do not touch any uninsulated portions of the cables with bare hands.

A second way of checking for the proper series connection is with an AC voltmeter. Each individual machine should produce approximately six volts at no load so an AC voltmeter connected across the ends of the series - connected secondaries should read twelve volts at no load. If the coils are connected backwards, the voltages will cancel to zero. If this happens, interchange the cables on the COMMON and HIGH TAP terminals of one machine only. Recheck voltages - the voltmeter should then show twelve volts. See Sketch.



8. MAINTENANCE

Because pipe thawing is a low-voltage/high-current operation, it is essential that secondary connections be clean and tight.

Periodically disconnect the leads from both the machine and the pipe clamps and wirebrush the surfaces so all corrosion is removed. Inspect the soldered connections at the lugs to be sure they remained clean and tight.

If extension cables are use, inspect the bolted joints to be sure they are secure.

IMPORTANT: Even if a joint is only "slightly loose", considerable energy can be lost and this can have an adverse effect on the thawing operation. Such a bad joint gets progressively worse because of the heat generated at the connection.

Always be sure all bolted joints are tight.

9. TROUBLE SHOOTING

If there is no spark when the clamp is tapped against the pipe, strike the two clamps together. If a spark is then seen, look for some discontinuity in the piping circuit; either corroded or rusty pipes through which no electrical connection can be made or a discontinuous pipe such as a broken joint, plastic section, or severely rusted threads.

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.

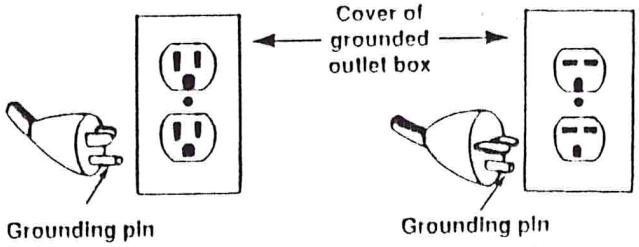
SAVE THESE INSTRUCTIONS!

Work Area Safety

1. **Keep work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Electrical switches may create sparks which may ignite dust or fumes.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause accidents.
4. **Do not let visitors contact the machine or extension cord.** Such preventative measures reduce the risk of injury.

Electrical Safety

1. **Grounded machine 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 a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the machine 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 electrical shock if your body is grounded.
3. **Don't expose electrical tools to rain or wet conditions.** Water entering a unit will increase the risk of electrical shock.
4. **Do not abuse cord. Never use the cord to carry the unit 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 electrical 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 electrical shock.
6. **Connect the unit to an AC power supply that matches the name plate specification.** Incorrect voltage supply can cause electrical shock or burns.
7. **Use only three-wire extension cords which have three-prong grounding plugs and three-pole receptacles which accept the machines plug.** Use of other extension cords will not ground the unit and increase the risk of electrical shock.
8. **Use proper extension cords** (see chart). Insufficient conductor size will cause excessive voltage drop, loss of power, and overheating.

Minimum Wire Gauge for Cord Set			
Nameplate Amps	Total Length (in feet)		
	0-25	26-50	51-100
0-6	18 AWG	16 AWG	16 AWG
6-10	18 AWG	16 AWG	14 AWG
10-12	16 AWG	16 AWG	14 AWG
12-16	14 AWG	12 AWG	NOT RECOMMENDED

9. **Keep all extension cord connections dry and off the ground. Do not touch plugs or tool with wet hands.** Reduces the risk of electrical shock.

Personal Safety

1. **Stay alert, watch what you are doing and use common sense when operating a tool. Do not use unit while tired or under the influence of drugs, alcohol, or medications.** A moment of inattention while operating this unit 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 machines 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 unit 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. **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.
2. **Store idle tools out of the reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
3. **Maintain tools with care.** Properly maintained tools are less likely to cause injury.
4. **Check for breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
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.
6. **Inspect tool and extension cords periodically and replace if damaged.** Damaged cords increase the risk of electrical shock.
7. **Keep handles dry and clean; free from oil and grease.** Allows for better control of the tool.
8. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the unit.** These preventative safety measures reduce the risk of accidentally starting the unit.

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 electrical shock or injury.
3. **Disconnect all power from the unit before servicing.** Eliminates the risk of electrical shock and accidental starting.

Specific Safety Information

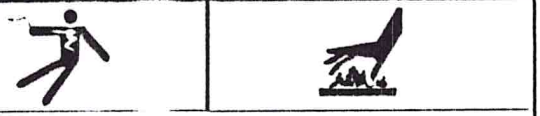
The Operator's Manual contains specific safety information and instructions for your protection against serious injuries including:

- Burns from contact with hot parts;
- Electrical shock or burns from contact with wires or other electrical parts.

Read and follow safety labels on machine.

Know the location and functions of all controls before using tool.

⚠ WARNING



WARNING: IMPROPER USE CAN CAUSE ELECTRICAL SHOCK OR BURNS.

- Do not use if electrical cords are damaged or worn.
- Plug cord into grounded three-prong receptacle.
- Do not touch clamp tips or cable connections. Hot surface.

Tool Safety

1. **Tool is made to thaw frozen iron or copper water pipes. Follow the instructions on proper use.** Other uses may increase the risk of injury.
2. **Do not leave the unit unattended while thawing.** Such preventive measures reduce the risk of injury or fire.
3. **Do not touch the clamp tips or cable connections.** Reduces the risk of burns.
4. **Do not operate unit with housing removed.** Exposure to internal parts may result in injury.
5. **Make both pipe connections before plugging in unit.** Prevents electrical arcing between the clamps and the pipe.
6. **Use cable and clamps provided with unit.** Incorrect cables may result in overheating of the wires.
7. **Keep clamps away from combustible materials or articles that can be damaged by heat.** Clamp tips become hot during use.

SAVE THESE INSTRUCTIONS!

Operating Instructions

Thawing Tap Water Lines

Note: It is recommended that there be standard water pressure on one side of the frozen section of pipe and an open faucet on the other side of the frozen section. As the pipe warms to above freezing point, the water, with pressure behind it, will seep along the inside walls melting and flushing the remaining ice out of the faucet.

Warning:

1. **Operator should be thoroughly familiar with safety precautions before attempting to operate this equipment.**
2. **To reduce risk of electrical shock, keep all electrical connections dry and off the ground. Do not touch plug with wet hands.**
3. **Be very careful when thawing frozen pipes. Clamp tips and cable connections become hot during use. Avoid contact with skin as burns can result.**

Machine Set-up

1. Position KT-190 or KT-200 Pipe Thawer near the area suspected of having a frozen section of pipe.
2. Make sure unit is unplugged and turned off. (Switch on KT-190 is in the down **OFF** position. Center switch on KT-200 is in the middle **OFF** position.)
3. Uncoil both cables completely and insure they are not overlapping or in contact.
4. Place one clamp on each side of the frozen section of pipe.

Note: Whenever making connections, clean pipe of paint, scale, rust, etc. to ensure good amperage flow from the clamps to the pipe. Poor connections will cause the clamps to get much hotter than normal.

5. Plug thawing unit into a grounded 15 amp 115 volt outlet.
6. Move switch to **ON** (Up position on KT-190. Center switch down to **Low** position, left switch to **A** on KT-200).
7. If current is below 15 amps on KT-200, switch to **B**. If current is still below 15 amps, switch to **HIGH** position on center switch and right switch up to **C**.
8. Continue until 15 amps is reached but not exceeded, **D** switch setting is used with long runs.

Thawing time may vary from a few seconds to several hours depending on length and diameter of pipe being thawed. If time seems unreasonable, check clamps for proper placement.

Note: This machine is equipped with a thermal overload for added safety. If thawing for long periods of time at maximum current the unit may shut down automatically. Unit will resume operations automatically after approximately 3 minutes.

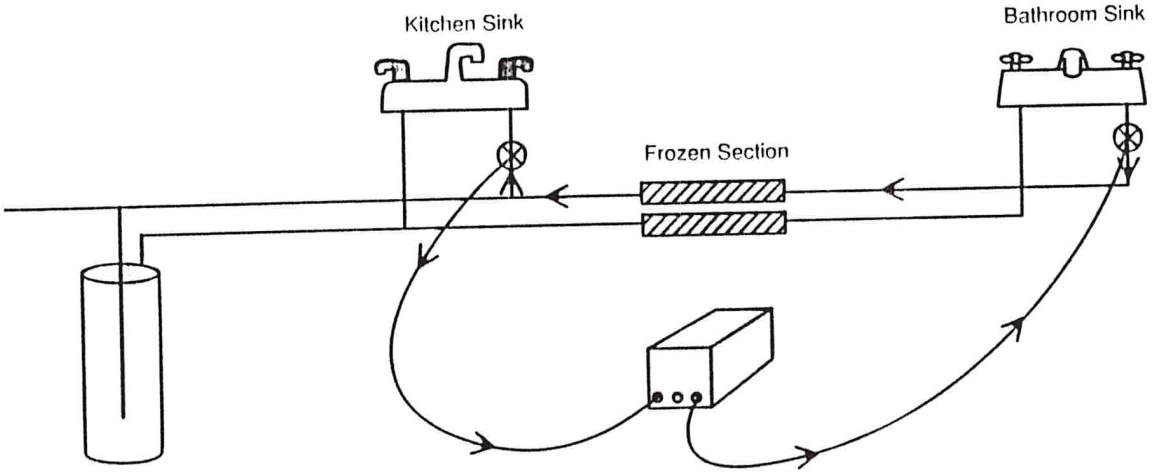


Figure 4 – Thawing Tap Water Lines