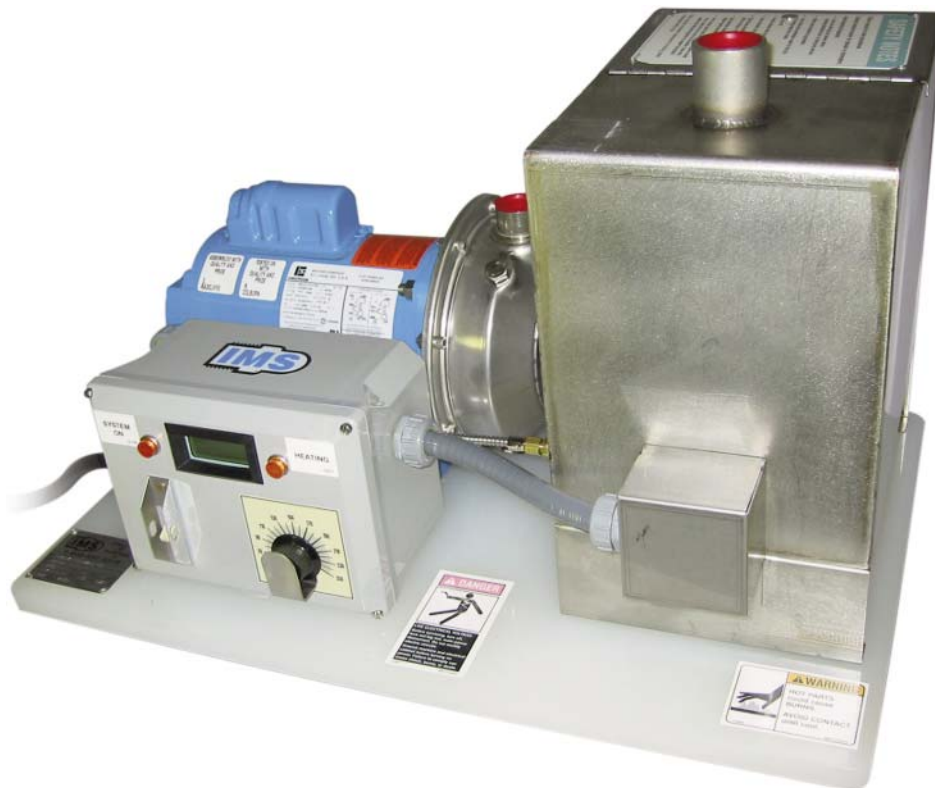




TEMKON SS™ Mold Circulator

IMS #108141

INSTRUCTION MANUAL



November 2009
IMS Company
10373 Stafford Road
Chagrin Falls, OH 44023-5296

Telephone: (440) 543-1615
Fax: (440) 543-1069
Email: sales@imscompany.com
Website: www.imscompany.com

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INSERTS

Pump Manual	Insert
Warranty Information	Insert

SAFETY SUMMARY

This manual uses the following words to show different levels of danger:

DANGER means that you are very likely to be killed or injured if you don't take the needed steps to avoid the hazard. This is the highest level of warning.

WARNING is for a situation where you could be killed or injured if you don't avoid the hazard.

CAUTION means you could receive moderate or minor injuries, or equipment could be damaged if you don't avoid the hazard.

The following are some general alerts that apply to this machine:

DANGER

LIVE ELECTRIC PARTS could cause DEATH or SHOCK.

Lock out and tag out power before doing service.

Only qualified electricians are to do electrical work.

WARNING

HOT PARTS and HOT WATER could BURN you.

Avoid contact.

Let system cool and vent pressure before you loosen water fittings.

Repair leaks immediately.

SPECIFICATIONS

Temperature Range	Approx. 90 to 250°F
Controls	Thermocouple sensor, fast-acting ON/OFF
Voltage	208 to 240 VAC, single phase
Pump/Motor	
Type	Centrifugal pump, close-coupled to AC motor
Power	1/2 hp
Speed	3450 rpm
Flow	30 gpm at 30 foot head
Heater	
Rating	3000 watts
Sheath	Copper -- for use with water
Tank	
Type	Welded stainless steel
Capacity	4.25 gallons
Mold Connections	
Mold Supply Outlet	Single, 1" NPT
Mold Return Inlet	Single, 1" NPT
Overall Size	14" wide x 25" deep x 17" high
Shipping Weight	90 lbs

DESCRIPTION

1. Overall

The Temkon SS Mold Heater is a water circulator for controlling temperature in a mold. With a large tank of water held at a steady temperature, the Temkon SS can cushion the mold from frequent temperature changes.

The Temkon SS consists of a fluid reservoir, pump and motor, and electrical controls, all mounted on a frame with casters for portability.

2. Control System

The pump motor runs whenever the unit is ON. A thermocouple-operated temperature controller sends power to an immersion heater whenever the water temperature in the tank drops below the setpoint.

INSTALLATION

1. Inspect Shipment

Inspect carton that unit has been shipped in. Remove carton from machine. Inspect for damage. Report any damage to carrier.

2. Select Location

Use the following guidelines to select location for machine:

- a. Place machine where it will be accessible.
- b. Make sure that heat from this unit will not damage any other machine or material.
- c. Select place where motor and heating elements from this machine are not near control portion of another machine.
- d. Locate circulator as close to mold as possible. Shorter hoses lose less heat.

INSTALLATION (continued)

3. Connect Discharge Line

Run a hose to mold from 1" NPT pump discharge. (See photo on page 8 to identify parts.)

Hose must be rated for 250°F and for ethylene glycol.

If mold has more than one inlet, use a manifold near mold, and a single line to feed manifold. This will help prevent heat-loss.

4. Connect Return Line

Run the same type of hose between 1" NPT tank inlet and mold outlet or manifold.

It is a good idea to install a thermometer at the tank inlet to keep track of heat loss through the mold and connections.

5. Fill Tank

a. Decide on ratio of inhibited ethylene glycol to water.

(1) The higher the ethylene glycol level, the better the corrosion resistance and the higher the temperature at which the circulator can be run.

(2) The lower the ethylene glycol level, the better the heat transfer ability.

WARNING

HOT PARTS and HOT WATER could BURN you.

Avoid contact.

Let system cool and vent pressure before you loosen water fittings.

Repair leaks immediately.

CAUTION

TOO-TIGHT FITTINGS could DAMAGE PUMP.

WEIGHT OF PIPES could DAMAGE PUMP.

Do not overtighten fitting on pump discharge.

Do not use pump to support weight of pipes.

INSTALLATION (continued)

- (3) Use the lowest concentration that will reach the temperatures you need, but use at least 30% for corrosion resistance.
 - (4) 80% ethylene glycol will reach about 250°F. 30% ethylene glycol will reach about 219°F, but will have almost twice the heat transfer ability that 80% would have.
- b. Make sure circulator is disconnected from electrical power.
 - c. Loosen plug on top of pump to vent pump.
 - d. Open lid and pour about 3 gallons of mixture into tank.

Do not overfill. Tank capacity is about 4 gallons. Lines and mold add to that capacity. But ethylene glycol expands as much as 15% when hot.

Level will be checked again when fluid is hot.

- e. Tighten vent plug on pump.

6. Optional

Make any other connections that your application requires. Installing insulating wrap around hoses will help prevent heat loss.

NOTE

Use a mixture of water and inhibited ethylene glycol in this circulator for the following reasons:

- The copper sheathing on the heater element is not meant for use with oil.
- The fluid flow pattern through the tank is not meant for oil.
- Pure water is too corrosive for use in this application.
- Pure ethylene glycol without inhibitors becomes acidic and corrosive in operation.
- Automotive anti-freeze also becomes acidic. In addition; its inhibitors break down in a short time, forming a gel that prevents heat transfer.

Percentages given here for ethylene glycol are by weight. At room temperature, ethylene glycol weighs about 10% more per gallon than water.

INSTALLATION (continued)

7. Wiring

- a. Connect only to 208-240 VAC, 60 hz, single phase power.
- b. Circulator has 8' power cord. Install plug for portability, or hard-wire to a fused disconnect with at least a 20-amp capacity.
- c. If hard-wiring cord to a circuit, lock out and tag out power to circuit first.

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power before doing
service.

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electricians are to do
electrical work.

INITIAL STARTUP

1. Check plumbing installation.
2. Check water level in tank.
3. Turn temperature controller down to 0. Turn MOTOR ON/OFF switch ON. SYSTEM ON light will come on to indicate that pump is running.
4. Check for plumbing leaks while machine is running. If there are leaks:
 - a. Stop machine.
 - b. Lock out and tag out power.
 - c. Correct leaks before starting up again.
5. Set thermostat to needed temperature. HEATING light will be on whenever thermostat is sending power to the heater.
6. Watch operation to be sure unit is heating properly. Check water temperature with thermometer.

NORMAL OPERATION

1. Circulator must have been installed according to INSTALLATION and must have gone through the checks in INITIAL STARTUP.
2. Turn ON/OFF switch on. Set thermostat to temperature needed.
3. Pump will run and SYSTEM ON light will be on.

Heater and HEATING light will only be on when water temperature is below setpoint.

4. Watch for leaks whenever unit is on. Leaking hot water could cause burns.
5. Check fluid level daily as follows:

- a. Run circulator until it is hot, then shut it off.

Allow fluid to return to tank from lines and mold.

- b. Check fluid level; tank should be 3/4 full when hot.

- c. Add water and ethylene glycol if needed (see *Fill Tank* on page 2 for ratio).

Do not add to tank unless lines have had a chance to drain. If lines drain into tank that is already full, there could be an overflow.

- d. Close and latch lid.

- e. Turn on power. Turn on machine.

6. To shut down circulator:

- a. Turn down temperature, to allow heater to cool down.

- b. After about 5 minutes, turn ON/OFF switch off.

MAINTENANCE

1. Keep motor clean. Dirt will shorten the life of any motor by holding in too much heat.
2. Check tank water level often -- especially when circulator is newly installed.

Do not let pump run dry. The liquid lubricates the seals. Running pump dry will destroy seals.

3. Pump and motor bearings are permanently greased. They need no maintenance.
4. See component manuals for repair procedures. All parts are available from IMS.

TROUBLESHOOTING

1. Motor and Heater Not Working

- Is switch ON?
- Is machine plugged in?
- Is there power to circuit that machine is plugged into?
- Is motor overload burned out? (overload is part of switch assembly)

2. Water Not Heating at all -- Motor Working

- Is temperature controller set to high-enough temperature?
- Check temperature controller.
- Check heater elements.

3. Too-High Heat

- Is temperature controller set too high?
- Check water temperature at more than one thermometer.
- Check temperature controller.

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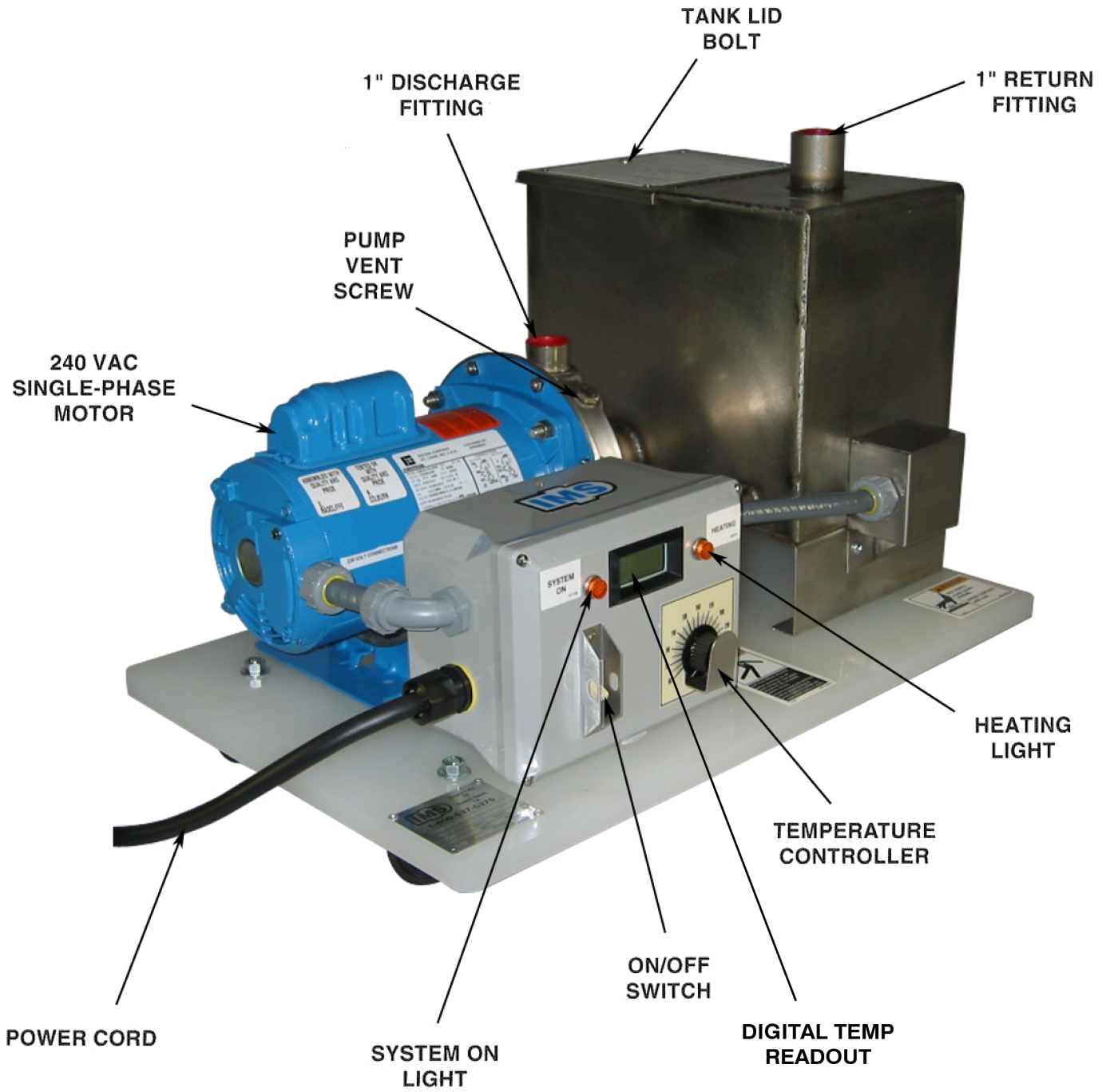
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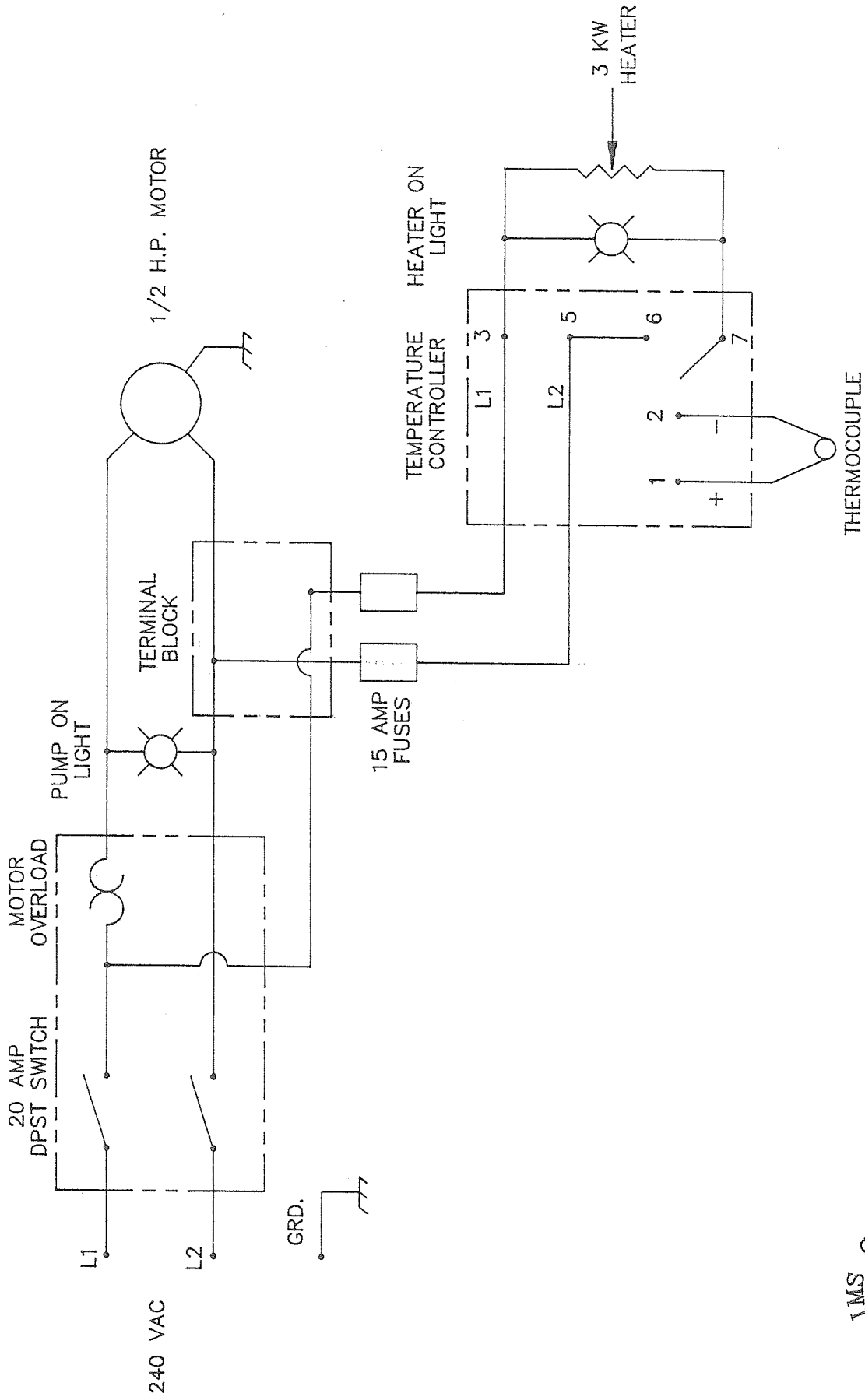
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REPLACEMENT PARTS

Pump and Motor	112360
Motor Only	131720
Heater Element	108448
Temperature Controller . . .	109047
ON/OFF Switch	106308
Overload Heater	118502
Fuse	108051
Indicator Light (SYSTEM ON, HEATING)	125338
Thermocouple	146646
Temperature Controller . . . (OLD STYLE)	109047
Temperature Controller . . . (NEW STYLE)	133277
Control Knob Guard	131357
Control Box (COMPLETE ASSEMBLY)	140617
Control Box Only	121045
LCD Readout	133278

TEMKON SS™





SCHEMATIC FOR UNITS MADE AFTER 3/1/92



TITLE		TEMKON SS CIRCULATOR	
CUSTOMER	240/60/1	DATE	4/1/92
DRAWN BY	BINDER	SCALE	MACHINE TYPE
CHECKED BY			
IMS COMPANY 10879 STAFFORD RD. CHAGRON FALLS, WI 53002		DESIGN NO.	A327A
IMS		REV.	DR

MAINTENANCE RECORD
AND NOTES