

# SpeedClave® Steam Sterilizers

Model Numbers:

**M7** -020 thru -022

Serial Number Prefixes:

V



## Service and Parts Manual

**"NO LONGER IN PRODUCTION"**  
Some service parts may not be available for this product.



SA102100

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

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## Symbols



### Caution

Indicates a potentially hazardous situation which could result in injury if not avoided.



### Equipment Alert

Indicates a potentially hazardous situation which could result in equipment damage if not avoided.

### Note

Amplifies a procedure, practice, or condition.



Indicates that the component the check mark appears beside should be tested before replacing it. In Section A, test the components in the order indicated. (ex. **1st** ✓ then, **2nd** ✓)

Refer to Section B for component testing procedures.

## Ordering Parts

The following information is required when ordering parts:

- Serial number & model number
- Part number for desired part.

*[Refer to Section E: Exploded Views / Parts Lists]*

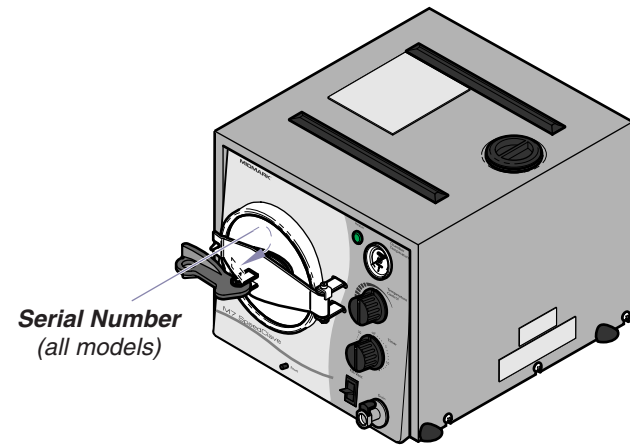
**Non-warranty parts orders may be faxed to Midmark using the Fax Order Form in the back of this manual.**

**For warranty parts orders, call Midmark's Technical Service Department with the required information.**

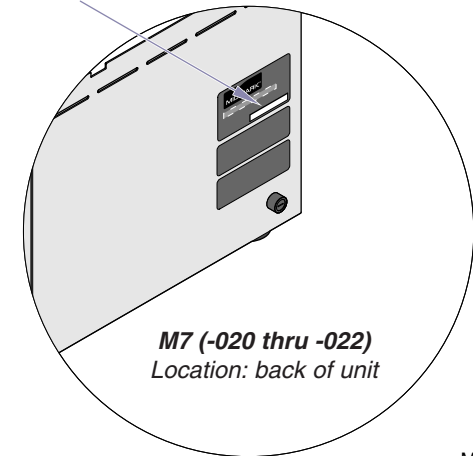
Hours: 8:00 am until 5:00 pm EST [Monday - Friday]

Phone: 1-(800)-Midmark

## Model / Serial Number Location



**Model & Serial Number**



MA511503i

# General Information

## Weights, Dimensions, Electrical Specifications

### ATTENTION

A separate (dedicated) electrical circuit is recommended for all models.  
Do not connect to a circuit with other devices, unless the circuit is rated for the additional load.

### M7 (-020 thru -022)

#### Dimensions [Refer to illustration]:

Height (A) .....	13 in. (33 cm)
Width (B) .....	14 in. (35.6 cm)
Depth (C) .....	19 in. (48.3 cm)

**Chamber Size:** ..... Diameter: 7.5 in. (19 cm)  
..... Depth: 14.25 in. (36.2 cm)

#### Shipping Carton:

(Length x Width x Height) ..... 24 in. x 16 in. x 16 in.  
..... (61 cm x 40.6 cm x 40.6 cm)

#### Weight:

Shipping Weight .....	39 lbs (17.7 kg)
w/reservoir empty .....	30 lbs (13.6 kg)
w/reservoir full .....	41.8 lbs (19 kg)

**Reservoir Capacity:** ..... Approx. 1.3 gallon (4.9 liters)  
..... at FULL mark

#### Pressure Relief Valve:

opens at approximately: ..... 34 psi (234 kPa)

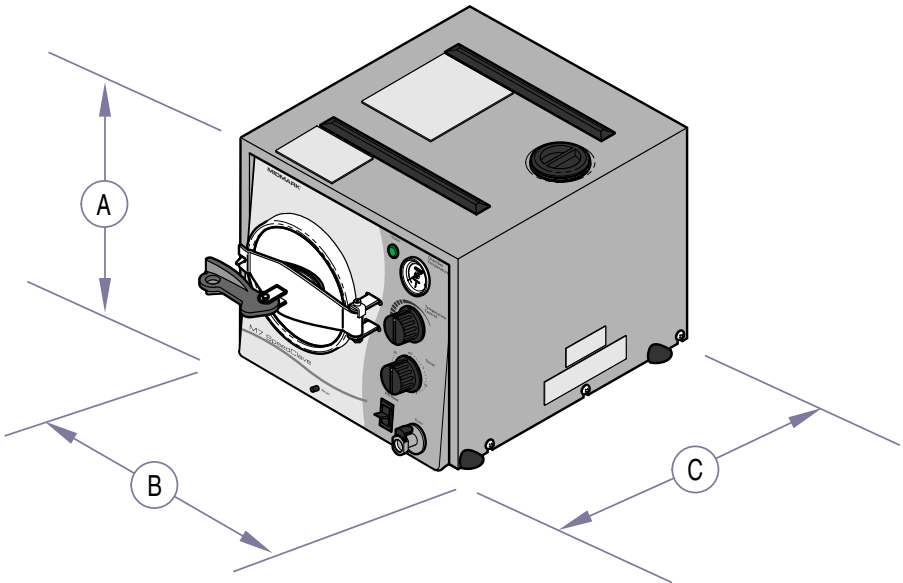
**Electrical Requirements:** ..... [See Model Identification /  
..... Compliance Chart]

#### Power Consumption:

115 VAC models .....	1300 watts, 10 amps @ 115 VAC
230 VAC models .....	1300 watts, 5 amps @ 230 VAC

#### Fuse (back of unit):

115 VAC models .....	12 amp, 250 V, Fast-Acting, 1/4" x 1-1/4"
230 VAC models .....	8 amp, 250 V, Fast-Acting, 5 x 20 mm



MA6706001

# General Information

## Model Identification / Compliance Chart

Model	Description	Serial Number Prefixes	Complies To:				Electrical Ratings:		
			UL 544	UL 61010A-1 61010-2-041	CAN/CSA C22.2, #151	CAN/CSA C22.2, #1010 #1010.2-041-96	VAC	Amps	Cycles (Hz)
M7-020	Midmark M7 Sterilizer (115 VAC)	V		X		X	115	10	60
M7-021	Midmark M7 Sterilizer (230 VAC)	V		X		X	230	5	50
M7-022	Ritter M7 Sterilizer (115 VAC)	V		X		X	115	10	60

# General Information

## Special Tools

This table lists all special tools needed to diagnose and repair the sterilizer.

Special Tool	Manufacturer	Part Number	Purpose of Tool
Digital Multimeter	Commercially available	any type	To perform continuity / voltage checks
Digital Thermometer	Commercially available	any type	To verify chamber temperature

## Warranty Information

### SCOPE OF WARRANTY

Midmark Corporation (“Midmark”) warrants to the original purchaser its new Alternate Care products and components (except for components not warranted under “Exclusions”) manufactured by Midmark to be free from defects in material and workmanship under normal use and service. Midmark’s obligation under this warranty is limited to the repair or replacement, at Midmark’s option, of the parts or the products the defects of which are reported to Midmark within the applicable warranty period and which, upon examination by Midmark, prove to be defective.

### APPLICABLE WARRANTY PERIOD

The applicable warranty period, measured from the date of delivery to the original user, shall be one (1) year for all warranted products and components.

### EXCLUSIONS

This warranty does not cover and Midmark shall not be liable for the following: (1) repairs and replacements because of misuse, abuse, negligence, alteration, accident, freight damage, or tampering; (2) products which are not installed, used, and properly cleaned as required in the Midmark “Installation” and or “Installation / Operation Manual for this applicable product. (3) products considered to be of a consumable nature; (4) accessories or parts not manufactured by Midmark; (5) charges by anyone for adjustments, repairs, replacement parts, installation, or other work performed upon or in connection with such products which is not expressly authorized in writing in advance by Midmark.

### EXCLUSIVE REMEDY

Midmark’s only obligation under this warranty is the repair or replacement of defective parts. Midmark shall not be liable for any direct, special, indirect, incidental, exemplary, or consequential damages or delay, including, but not limited to, damages for loss of profits or loss of use.

### NO AUTHORIZATION

No person or firm is authorized to create for Midmark any other obligation or liability in connection with the products.

### ADDITIONAL INFORMATION

Failure to follow the guidelines listed below will void the warranty and/or render the table unsafe for use.

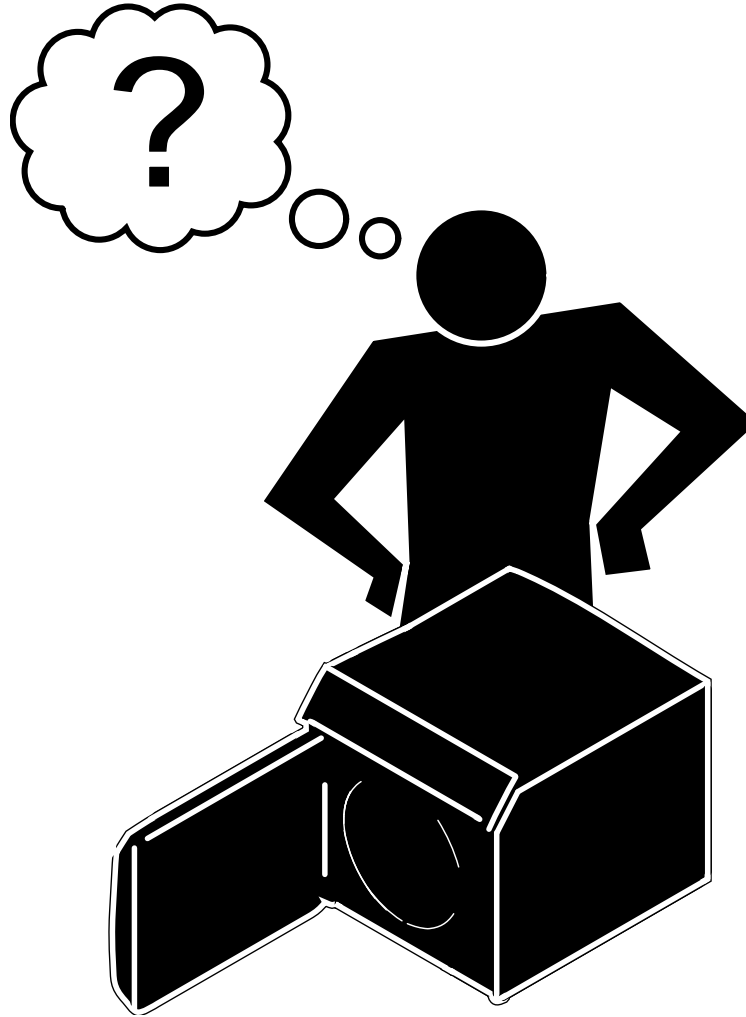
- If a malfunction is detected, do not use the table until necessary repairs are made.
- Do not attempt to disassemble table, replace components, or perform adjustments unless you are a Midmark authorized service technician.
- Do not use another manufacturer's parts to replace malfunctioning components. Use only Midmark replacement parts

**THIS WARRANTY IS MIDMARK’S ONLY WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. MIDMARK MAKES NO IMPLIED WARRANTIES OF ANY KIND INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS.**

SF-1487 REV. A1

# Section A

## ***Operation & Troubleshooting***

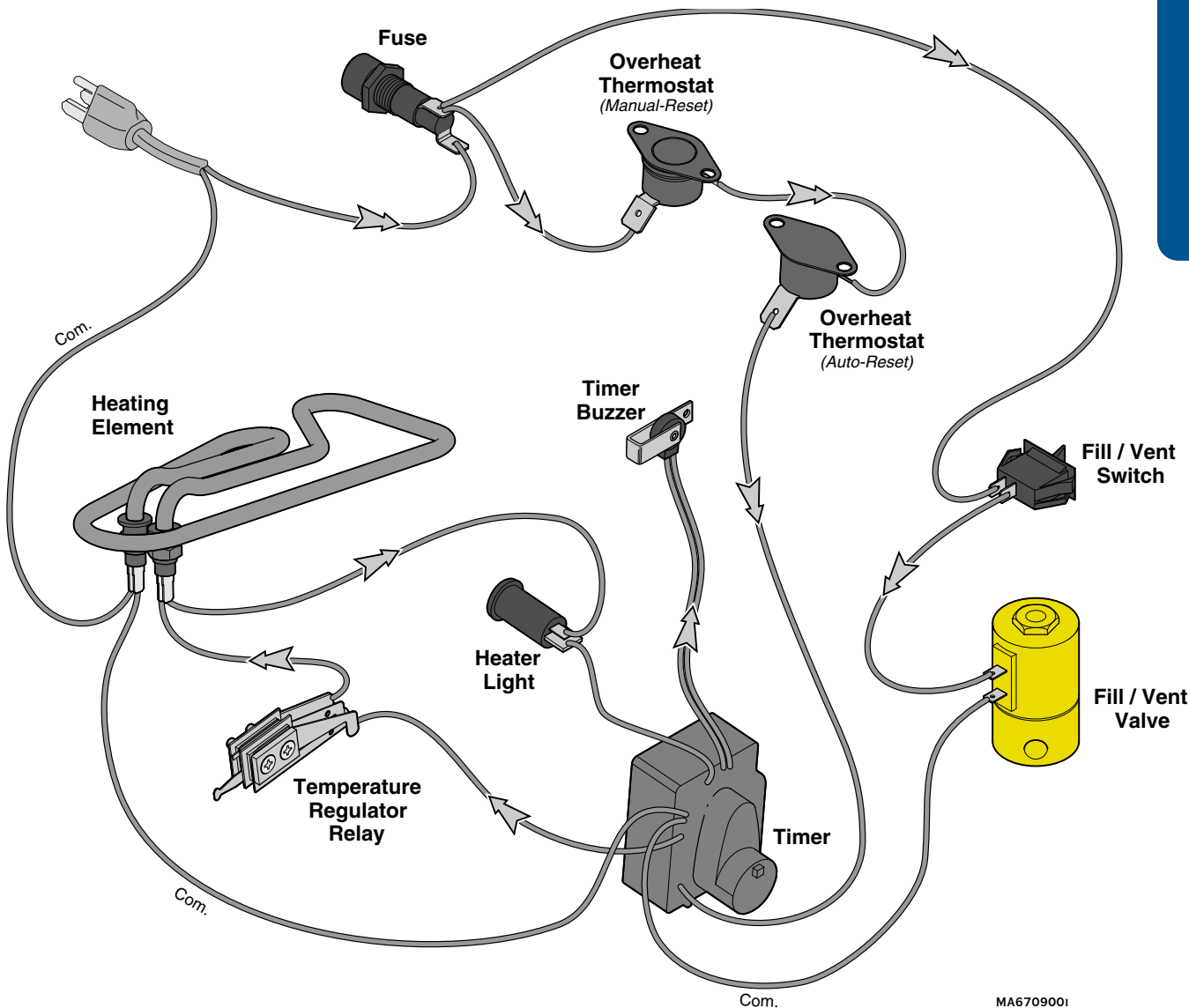


<u>Mode</u>	<u>Page</u>
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# Operation & Troubleshooting

## Electrical System - [M7 (-020 thru -022)]

The illustration shows all of the electrical components of the sterilizer.  
Refer to the following page for a detailed description of current flow.



### Troubleshooting [Electrical System]

Problem:	Page
When Fill/Vent Switch is pressed:	
- Chamber does not FILL .....	A-8
- Chamber does not VENT .....	A-18
Heating element does <u>not</u> turn ON:	
- Heater light is OFF .....	A-4
- Heater light is ON .....	A-5
Sterilizer shuts down before timer setting expires .....	A-13
Timer buzzer does not function .....	A-15



## Electrical System - [M7 (-020 thru -022)]

### **With the power cord properly connected...**

#### Fuse

Current (115 / 230 VAC) continuously flows thru the fuse located in the back of the unit. This current supplies power to the fill / vent switch and the overheat thermostats.

#### Fill / Vent Switch

Current is supplied to the fill / vent switch thru the fuse.

#### Overheat Thermostats & Timer

Current is supplied to the two overheat thermostats thru the fuse.  
Current continuously flows thru the thermostats to the timer.

If either thermostat opens (*overheat or malfunction*), voltage is removed from the timer until the thermostat is reset or replaced.

#### **NOTE**

The Manual-Reset Thermostat contacts open at approximately 285°F (140°C).  
To reset, allow unit to cool, then press RESET button on front of unit.

The Auto-Reset Thermostat contacts open at approximately 295°F (146°C).  
This thermostat automatically resets when the unit cools to approx. 265°F (129°C).

### **When filling the chamber (pressing the fill/vent switch)...**

#### Fill / Vent Switch

The contacts of the (*normally open*) switch close. When the contacts of the switch are closed, current is supplied to the fill / vent valve.

#### Fill / Vent Valve

When current is applied to the (*normally closed*) valve, the valve opens.  
When the valve is open, water flows into the chamber.

### **When the Timer is turned ON...**

#### Timer

The (*normally open*) timer contacts close, and voltage is supplied to the timer motor and the temperature regulator relay. The timer motor runs, and begins to count down the time it was set for.  
(*The contacts to the timer buzzer remain open*).

### **When the timer is turned ON (continued)...**

#### Temperature Regulator Relay

Current is supplied to the temperature regulator relay thru the timer. If the chamber temperature is lower than the temperature knob setting\*, the relay contacts are closed. When these contacts are closed, current flows thru the relay to the heating element and the heater light.

[\* *The minimum temperature knob setting is approx. 220°F (104°C)*]

The diaphragm cup of the relay expands as the temperature & pressure inside the chamber increase. When the chamber temperature reaches the temperature knob setting, the relay contacts open, and voltage is removed from the heating element & heater light.

#### Heater Light & Heating Element

When the contacts of the temperature regulator relay are closed, current is supplied to the heater light and the heating element.  
As the relay contacts open and close, the heating element cycles ON / OFF. This continues until the timer setting expires.  
The heater light is illuminated whenever the heating element is ON.

### **When the timer setting expires...**

#### Timer & Timer Buzzer

The contacts to the temperature regulator relay open, stopping the current flow to the heater light & heating element.

The contacts to the timer buzzer close and current flows to the timer buzzer. When voltage is applied, the buzzer emits an audible signal.

The contacts to the timer motor remain closed for one minute. After one minute the contacts to the timer motor & the timer buzzer open, stopping the current flow to these two components.

### **When pressing the Fill / Vent Switch (to VENT the chamber)...**

#### Fill / Vent Switch

The contacts of the (*normally open*) switch close. When the contacts of the switch are closed, current is supplied to the fill / vent valve.

#### Fill / Vent Valve

When current is applied to the (*normally closed*) valve, the valve opens.  
When the valve is open, steam is released thru the condensing coil & the water is returned to the reservoir .

# Operation & Troubleshooting

**Problem:** Heating element does not turn ON.  
[Heater light is OFF]

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1

**Loose / Damaged Wire Connections** 4th ✓  
Check all wiring connections.  
(Power cord, overheat thermostats, etc.)

M7 (-020 thru -022) only 3rd ✓  
**Fuse**

Timer 7th ✓

Temperature Regulator Assy. 6th ✓

Check supply voltage 2nd ✓  
(A dedicated circuit is recommended)

Press RESET button 1st ✓  
Allow unit to cool for 15-20 minutes  
before pressing RESET button.

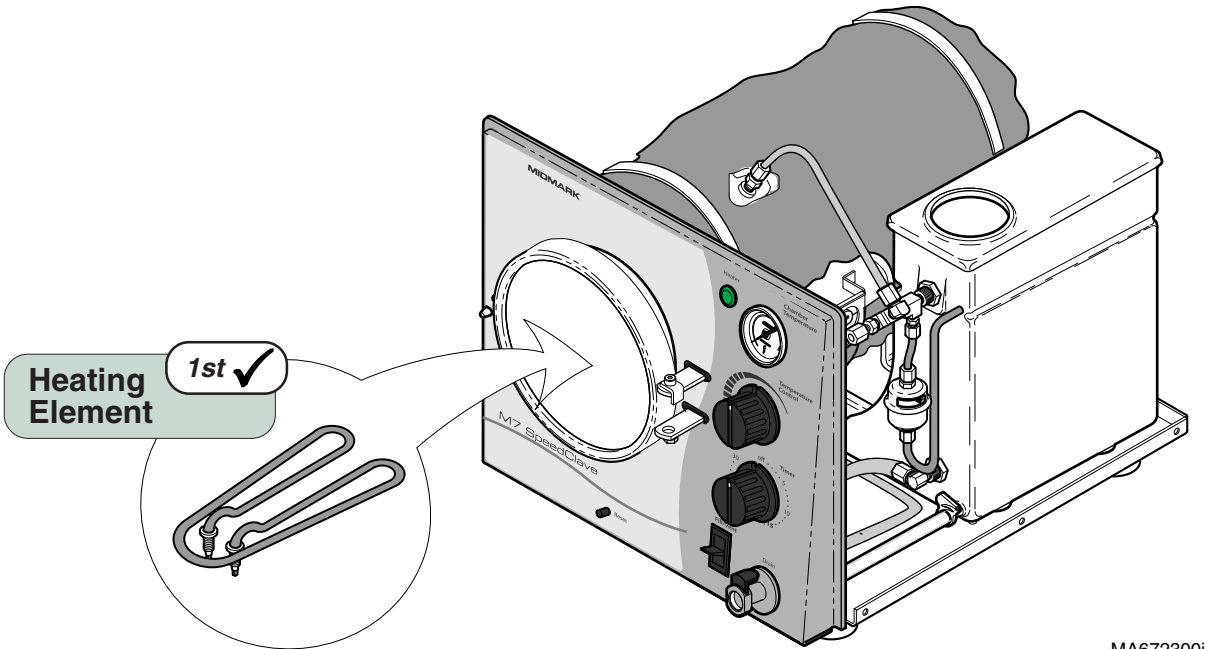
Overheat Thermostats 5th ✓

MA670800i



**Problem:** Heating element does not turn ON.  
[Heater light is ON]

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



MA672300i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Electrical System

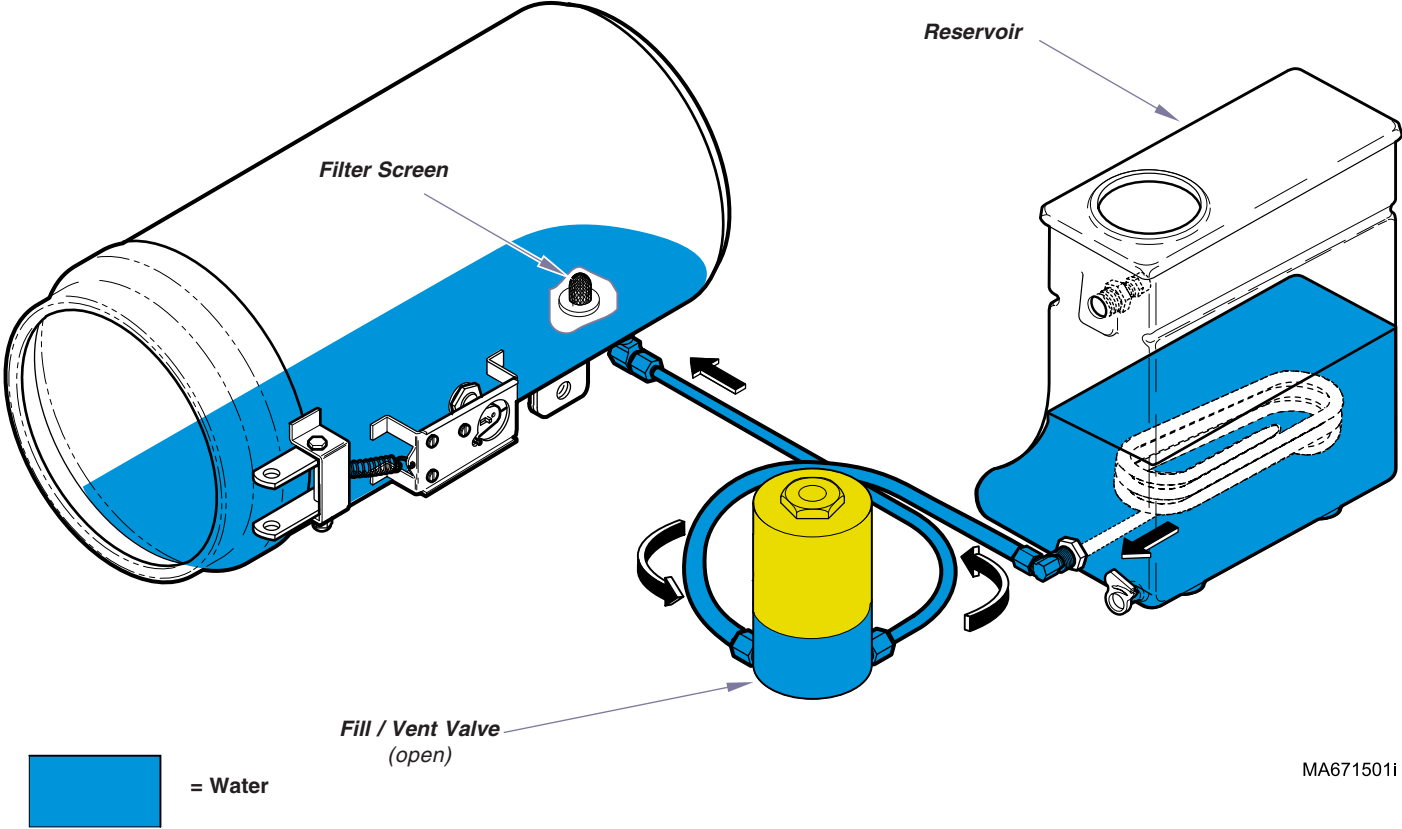
# Operation & Troubleshooting

## Filling the Chamber

The illustrations show the water flow when filling the chamber.  
Refer to the following page for a detailed description of this process.

### Troubleshooting [Filling the Chamber]

Problem:	Page
Chamber does not fill:	
- M7 (-020 thru -022) .....	A-8
Water continuously flows into chamber:	
- M7 (-020 thru -022) .....	A-9



## Filling the Chamber

### **When the Fill / Vent Switch is pressed and held...**

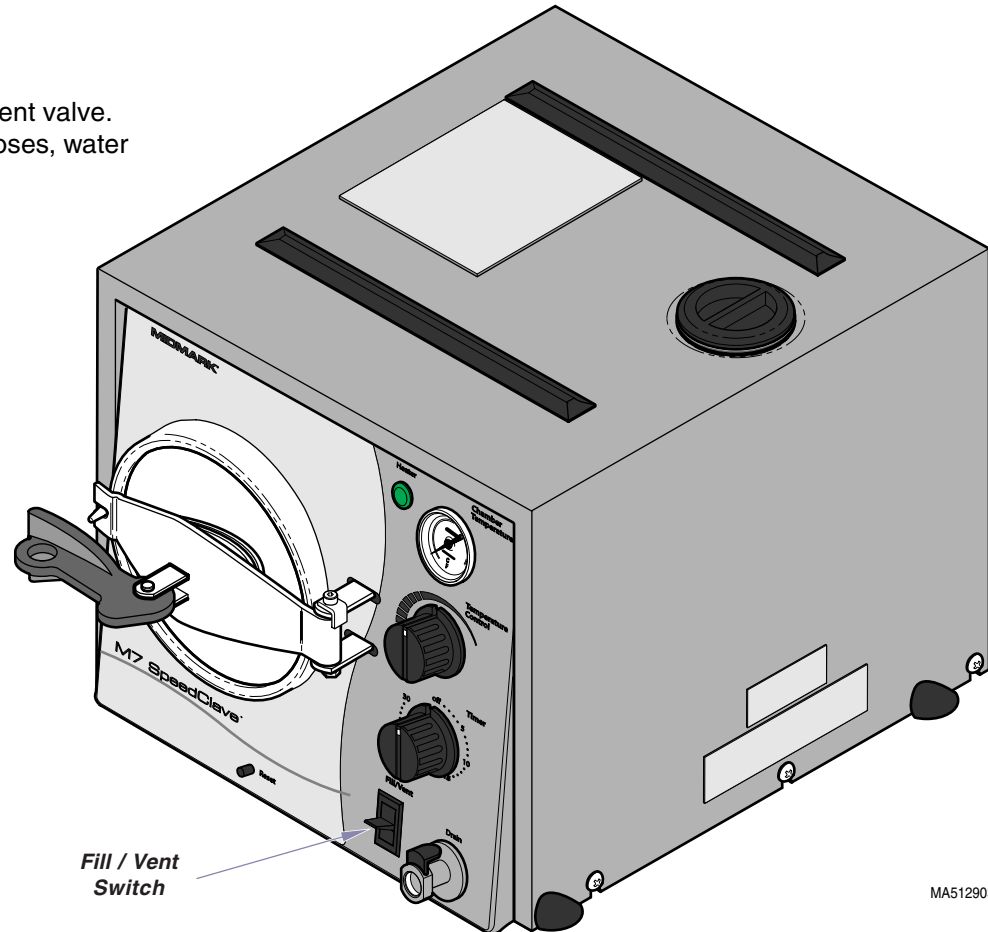
#### Fill / Vent Switch & Valve

Current (*line voltage*) flows thru the fill/vent switch to the fill/vent valve. When voltage is applied, the (*normally closed*) fill / vent valve opens. When the valve is open, water from the reservoir flows into the chamber thru the valve and filter screen.

### **When the Fill / Vent Switch is released...**

#### Fill / Vent Switch & Valve

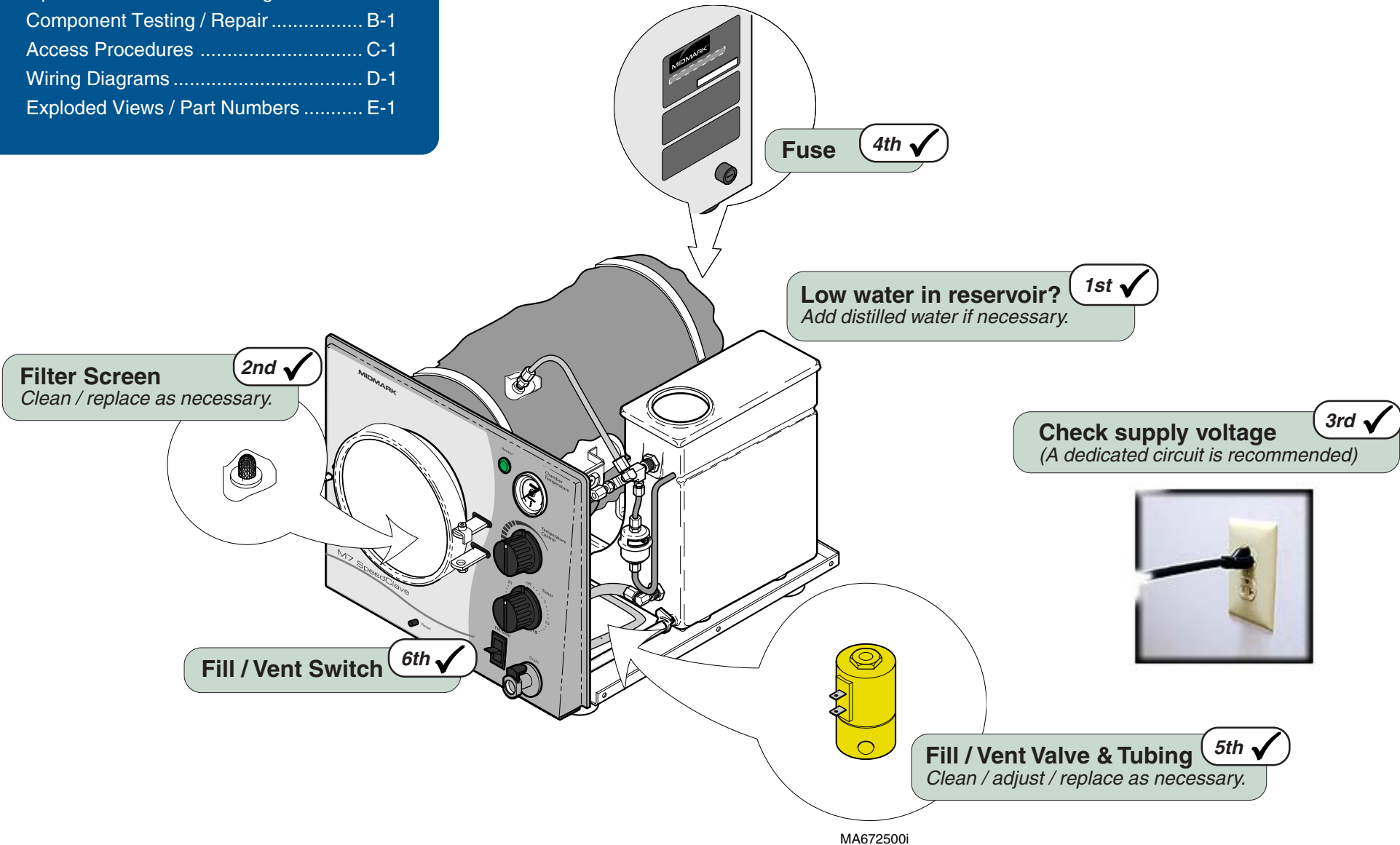
The fill/vent switch opens, stopping the current flow to the fill/vent valve. When voltage is removed, the valve closes. When the valve closes, water stops flowing into the chamber.



# Operation & Troubleshooting

**Problem:** Chamber does not fill.

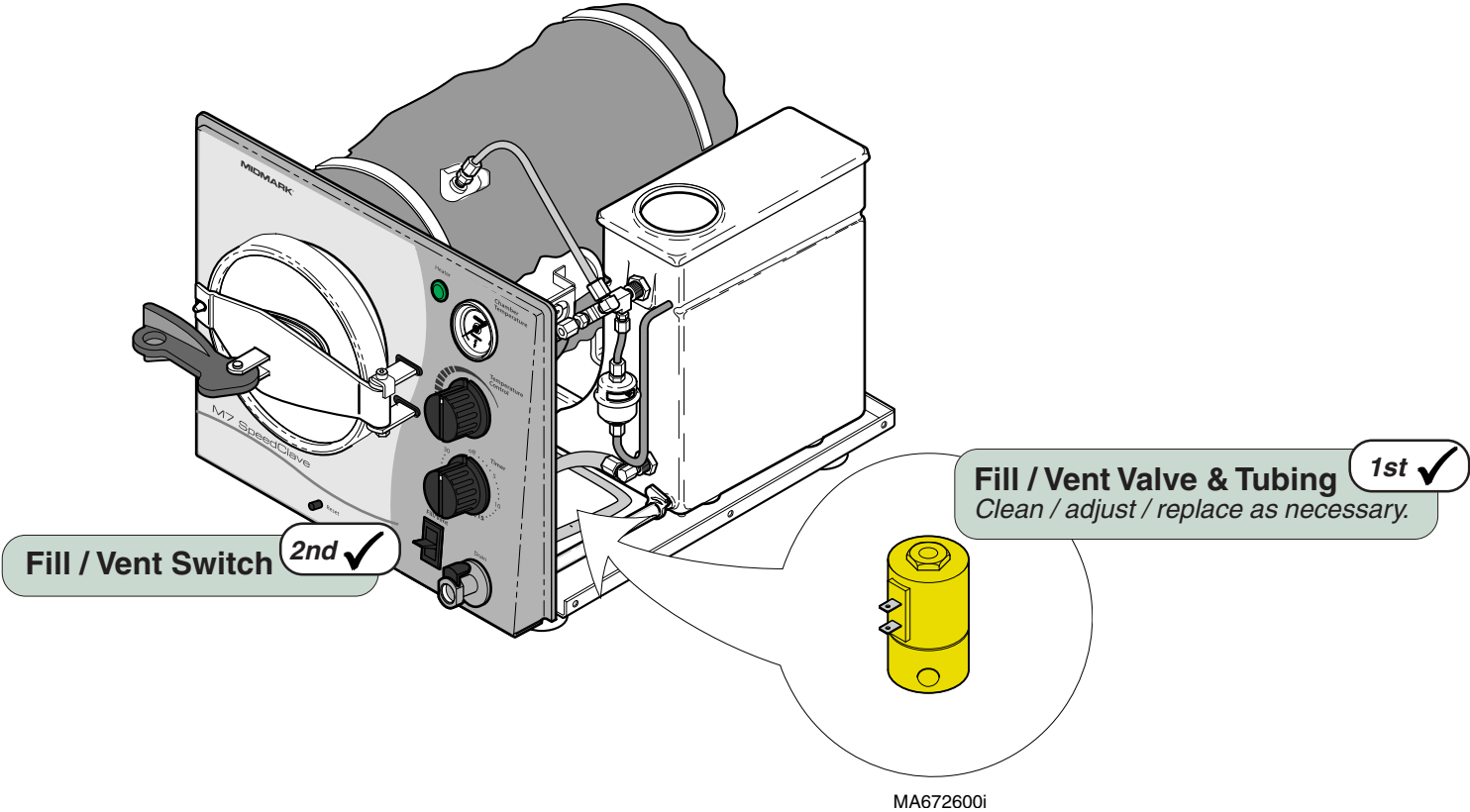
Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
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MA672500i

**Problem:** Water continuously flows into chamber.

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Filling the Chamber

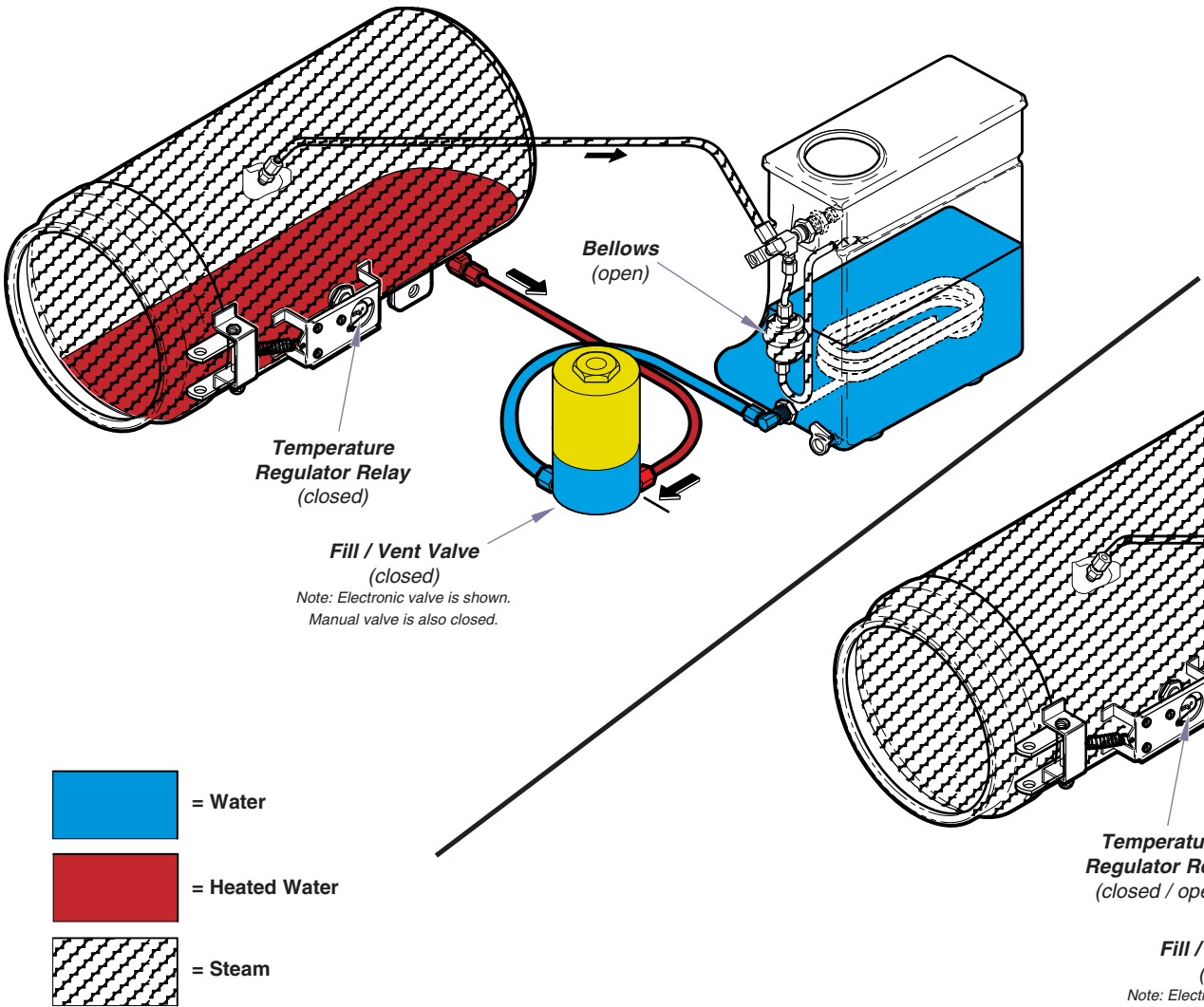


# Operation & Troubleshooting

## Heat Up / Sterilization

The illustrations show the water / steam flow during heat up & sterilization.  
Refer to the following page for a detailed description of this process.

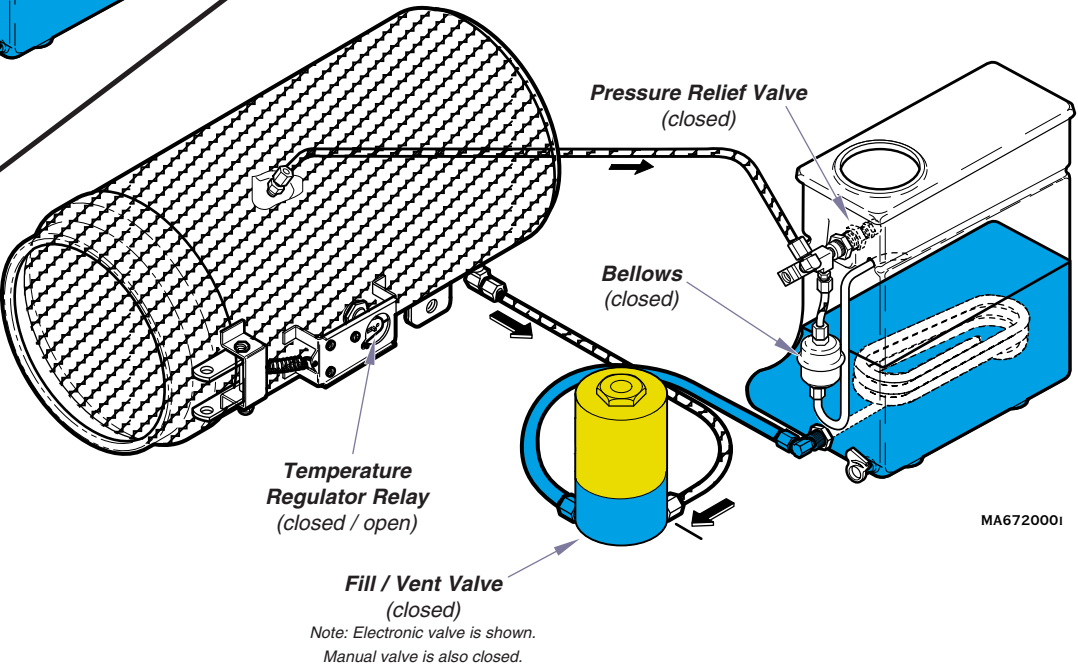
### Heat-Up



## Troubleshooting [Heat-Up / Sterilization]

Problem:	Page
Heating element does <u>not</u> turn ON:	
- Heater light is OFF .....	A-4
- Heater light is ON .....	A-5
Heating element turns ON, but does not reach required temperature .....	A-12
Sterilizer shuts down before timer setting expires .....	A-13
Biological test strips indicate items are not sterile .....	A-14
Timer buzzer does not function .....	A-15

### Sterilization



MA6720001



## Heat-Up / Sterilization

### ***When the timer is turned ON...***

#### Timer

The (*normally open*) timer contacts close, and voltage is supplied to the timer motor and the temperature regulator relay. The timer motor runs, and begins to count down the time it was set for.  
(*The contacts to the timer buzzer remain open*).

#### Temperature Regulator Relay

Current is supplied to the temperature regulator relay thru the timer. If the chamber temperature is lower than the temperature knob setting\*, the relay contacts are closed. When these contacts are closed, current flows thru the relay to the heating element and the heater light.

[\* *The minimum temperature knob setting is approx. 220°F (104°C)*]

The diaphragm cup of the relay expands as the temperature & pressure inside the chamber increase. When the chamber temperature reaches the temperature knob setting, the relay contacts open, and voltage is removed from the heating element & heater light.

#### Heater Light & Heating Element

When the contacts of the temperature regulator relay are closed, current is supplied to the heater light and the heating element.

As the relay contacts open and close, the heating element cycles ON / OFF. This continues until the timer setting expires.

The heater light is illuminated whenever the heating element is ON.

#### Bellows & Pressure Relief Valve

##### **Heat-Up:**

As the water in the chamber begins to boil, air is forced out of the chamber. This air passes thru the bellows into the reservoir.

##### **Sterilization:**

When pure steam begins to flow thru the bellows, the bellows closes allowing pressure to build in the chamber. If the pressure in the chamber exceeds 34 psi (234 kPa), the pressure relief valve opens to prevent unsafe conditions.

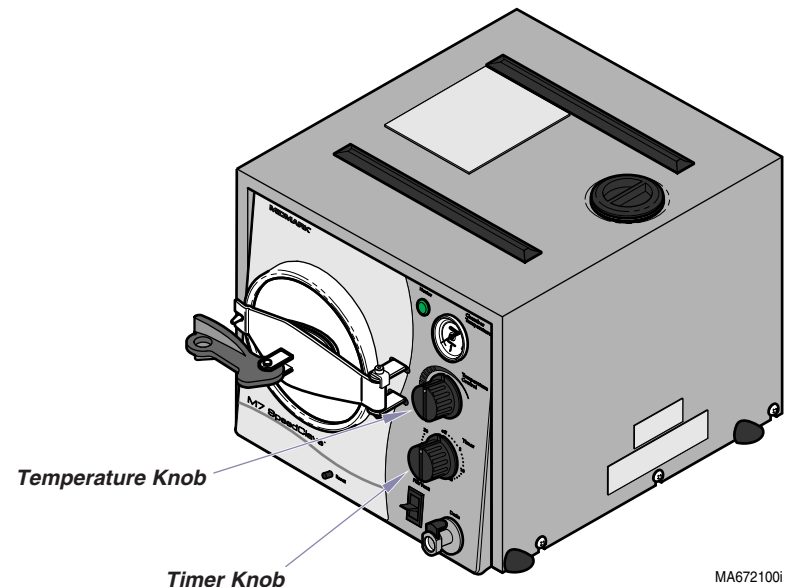
### ***When the timer setting expires...***

#### Timer & Timer Buzzer

The contacts to the temperature regulator relay open, stopping the current flow to the heater light & heating element.

The contacts to the timer buzzer close and current flows to the timer buzzer. When voltage is applied, the buzzer emits an audible signal.

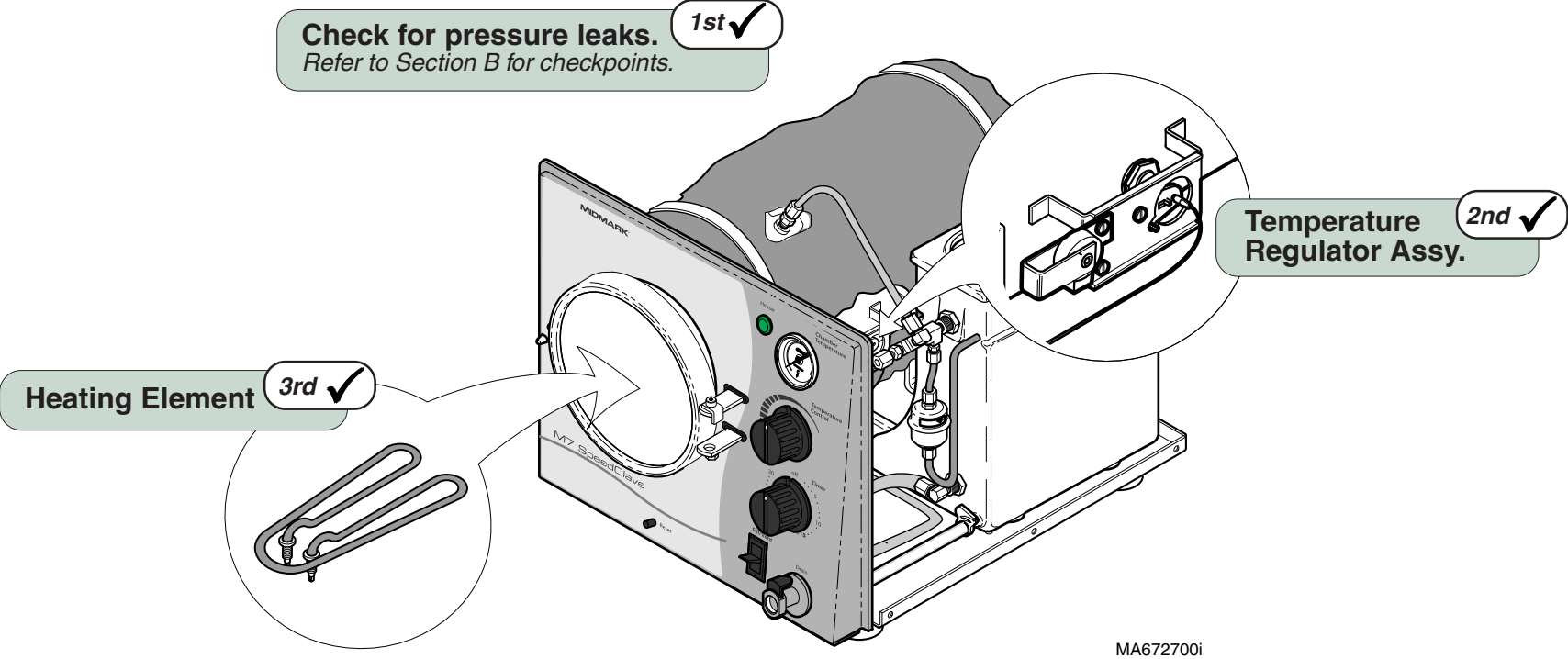
The contacts to the timer motor remain closed for one minute. After one minute the contacts to the timer motor & the timer buzzer open, stopping the current flow to these two components.



# Operation & Troubleshooting

**Problem:** Heating element turns ON, but does not reach required temperature.  
[Heater light is ON]

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



**Problem:** Sterilizer shuts down before timer setting expires.

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1

**Check for pressure leaks.**  
Refer to Section B for checkpoints.

1st ✓

Timer

5th ✓

**Temperature  
Regulator Assy.**

4th ✓

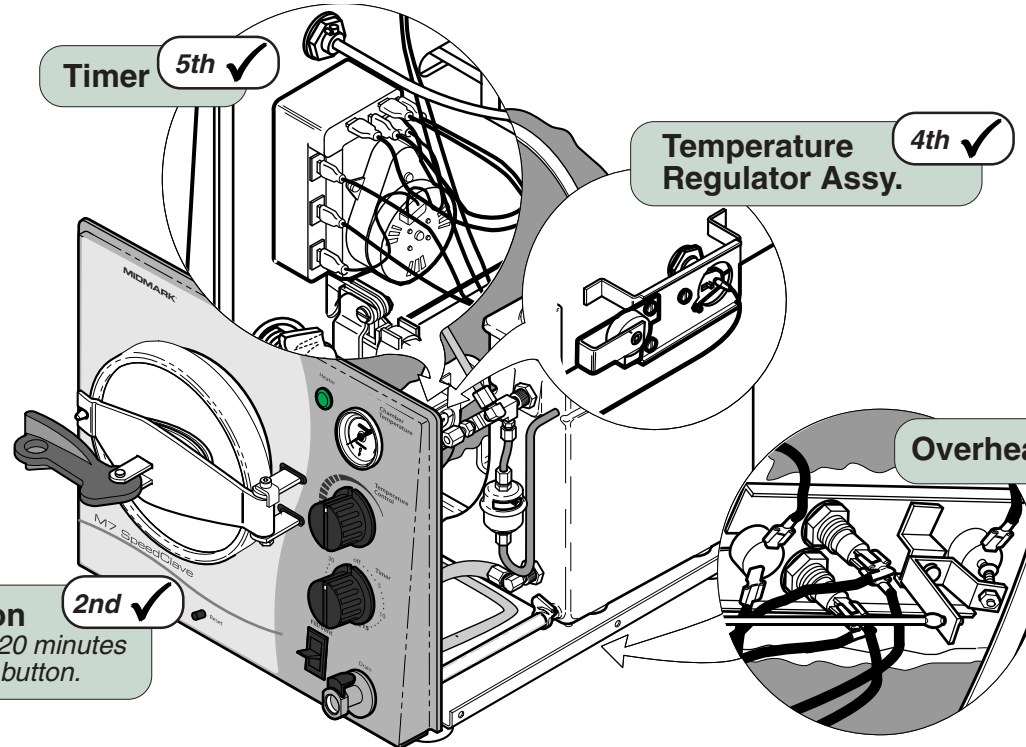
**Overheat Thermostats**

3rd ✓

**Press RESET button**

Allow unit to cool for 15-20 minutes  
before pressing RESET button.

2nd ✓



MA672800i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Heat-Up / Sterilization

# Operation & Troubleshooting

**Problem:** Biological test strips indicate items are not sterile.

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1

1st ✓

**Type / condition of indicator strips**  
*This unit requires test strips rated for:  
**Gravity Displacement Steam Sterilizers***

*Test strips must be stored in a cool, dry location.  
Failure to do so will result in faulty readings.*

*(Follow all instructions provided with test strips)*

2nd ✓

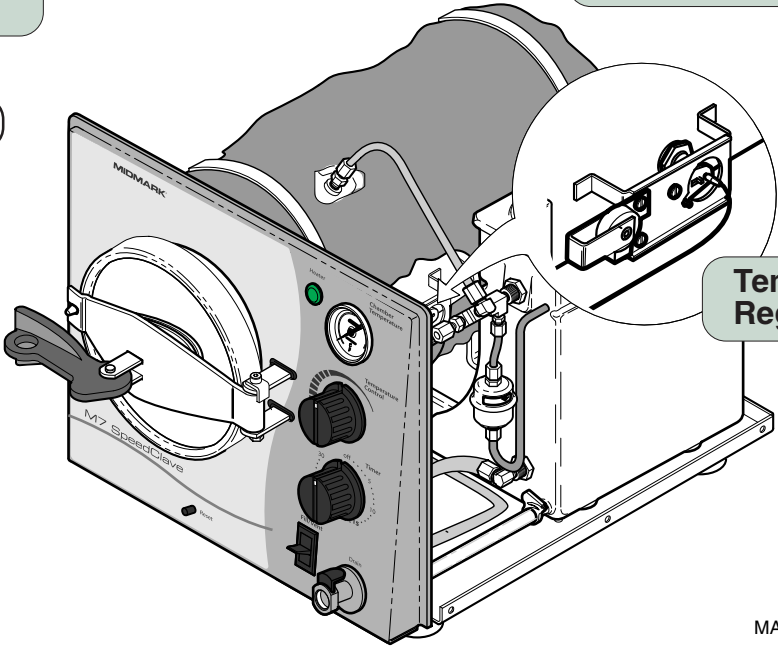
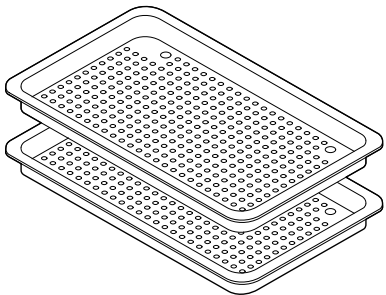
**Is the sterilizer overloaded?**  
*Large loads or heavy linen packs may  
prevent strips from changing.*

4th ✓

**Check for pressure leaks.**  
*Refer to Section B for checkpoints.*

3rd ✓

**Are the correct trays being used?**  
*Some trays may prevent proper air flow.  
Be sure trays are designed for this sterilizer.*



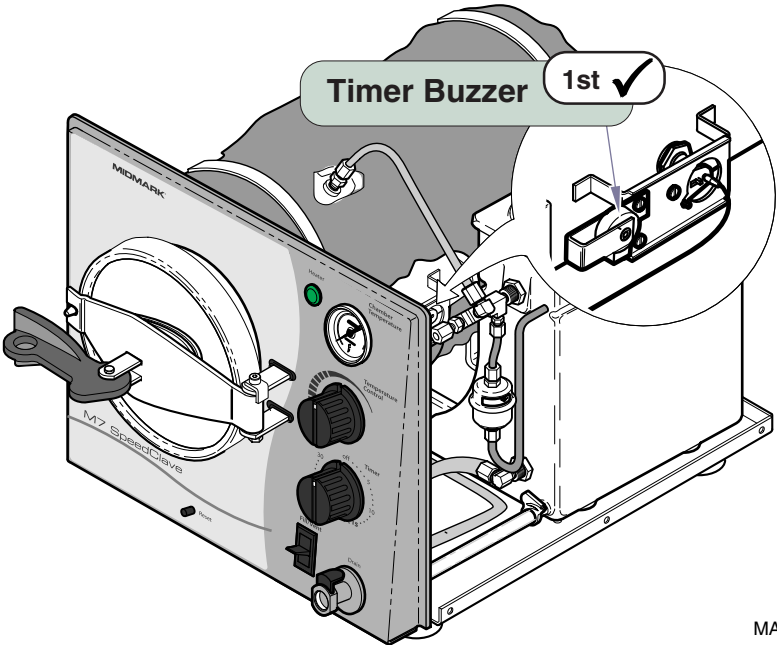
5th ✓

**Temperature  
Regulator Assy.**

MA672900i

**Problem:** Timer buzzer does not function.

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



MA672900i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Heat-Up / Sterilization

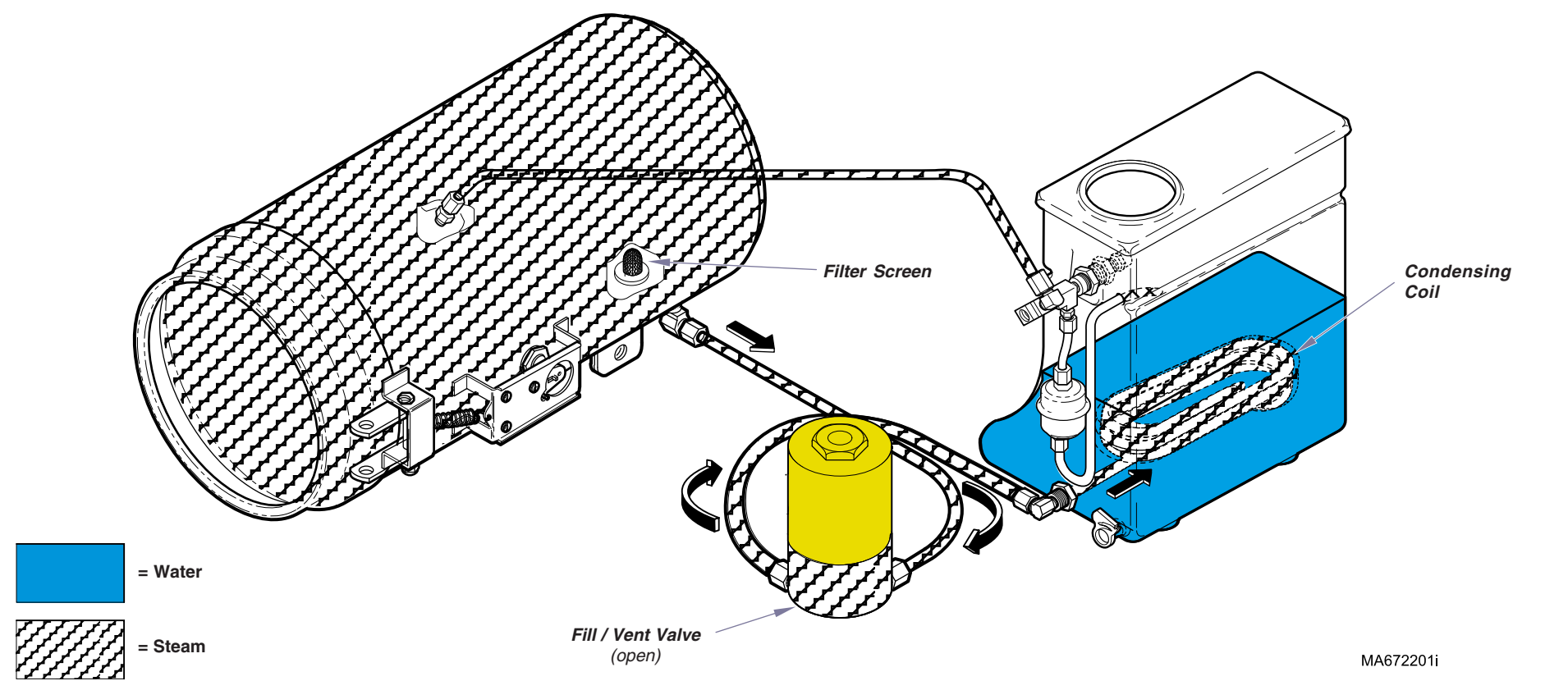
# Operation & Troubleshooting

## Venting the Chamber

The illustrations show the steam / water flow when venting the chamber.  
Refer to the following page for a detailed description of this process.

### Troubleshooting [Venting the Chamber]

Problem:	Page
Chamber will not vent:	
- M7 (-020 thru -022) .....	A-18



MA672201i

## Venting the Chamber

### ***When the Fill / Vent Switch is pressed and held...***

#### Fill / Vent Switch & Valve

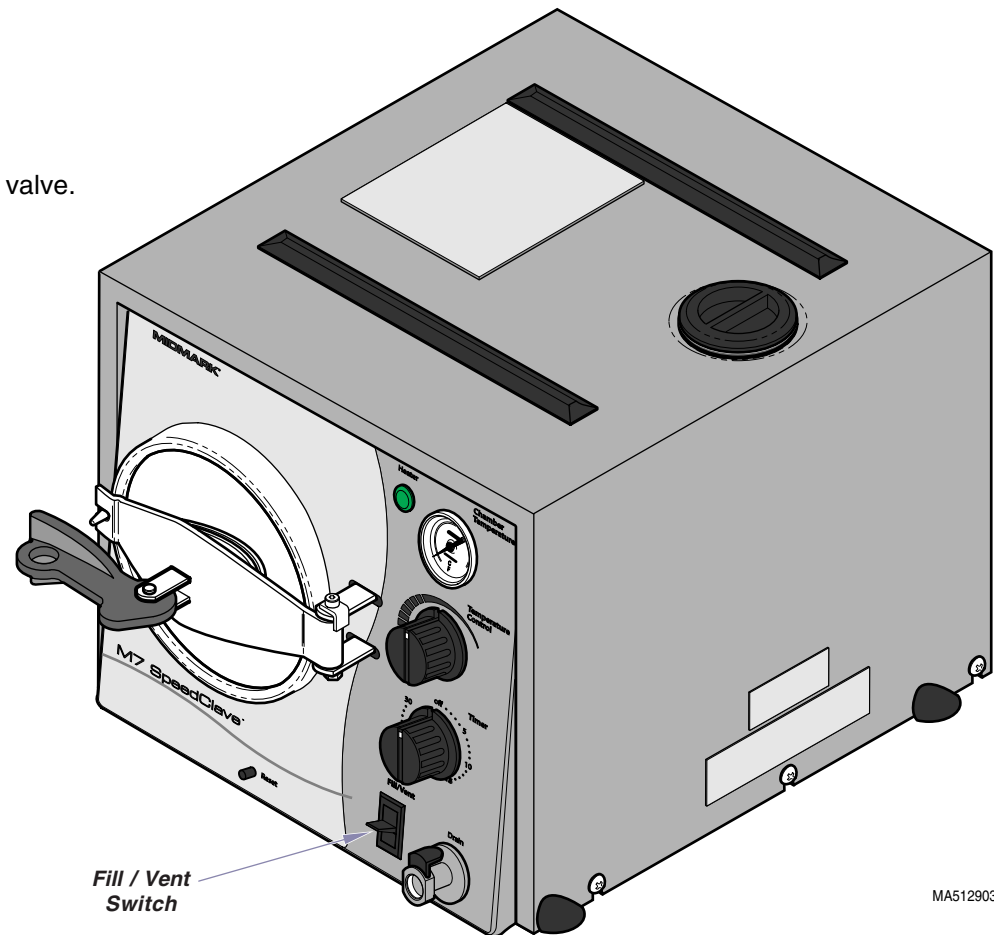
Current (*line voltage*) flows thru the fill/vent switch to the fill/vent valve. When voltage is applied, the (*normally closed*) fill / vent valve opens. Pressure forces water and steam back into the reservoir thru the valve and the condensing coil. When all of the pressure has been vented, the door will "pop".

*Note: Release the lever when the door "pops".  
If the lever is held too long, the chamber will begin to fill.*

### ***When the Fill / Vent Switch is released...***

#### Fill / Vent Switch & Valve

The fill/vent switch opens, stopping the current flow to the fill/vent valve. When voltage is removed, the valve closes.



**Problem:** Chamber will not vent.

Refer To:	Page
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Component Testing / Repair .....	B-1
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**Filter Screen** 1st ✓  
*Clean / replace as necessary.*

**Fill / Vent Switch** 3rd ✓

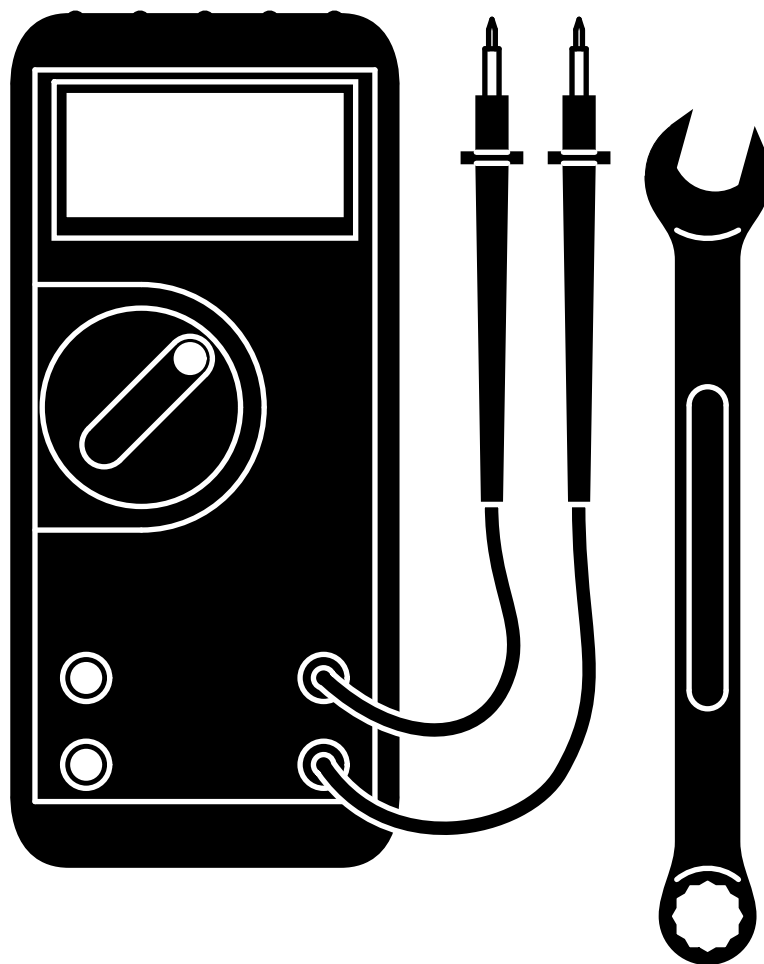
**Fill / Vent Valve & Tubing** 2nd ✓  
*Clean / adjust / replace as necessary.*

MA673000i



# Section B

## Testing & Repair



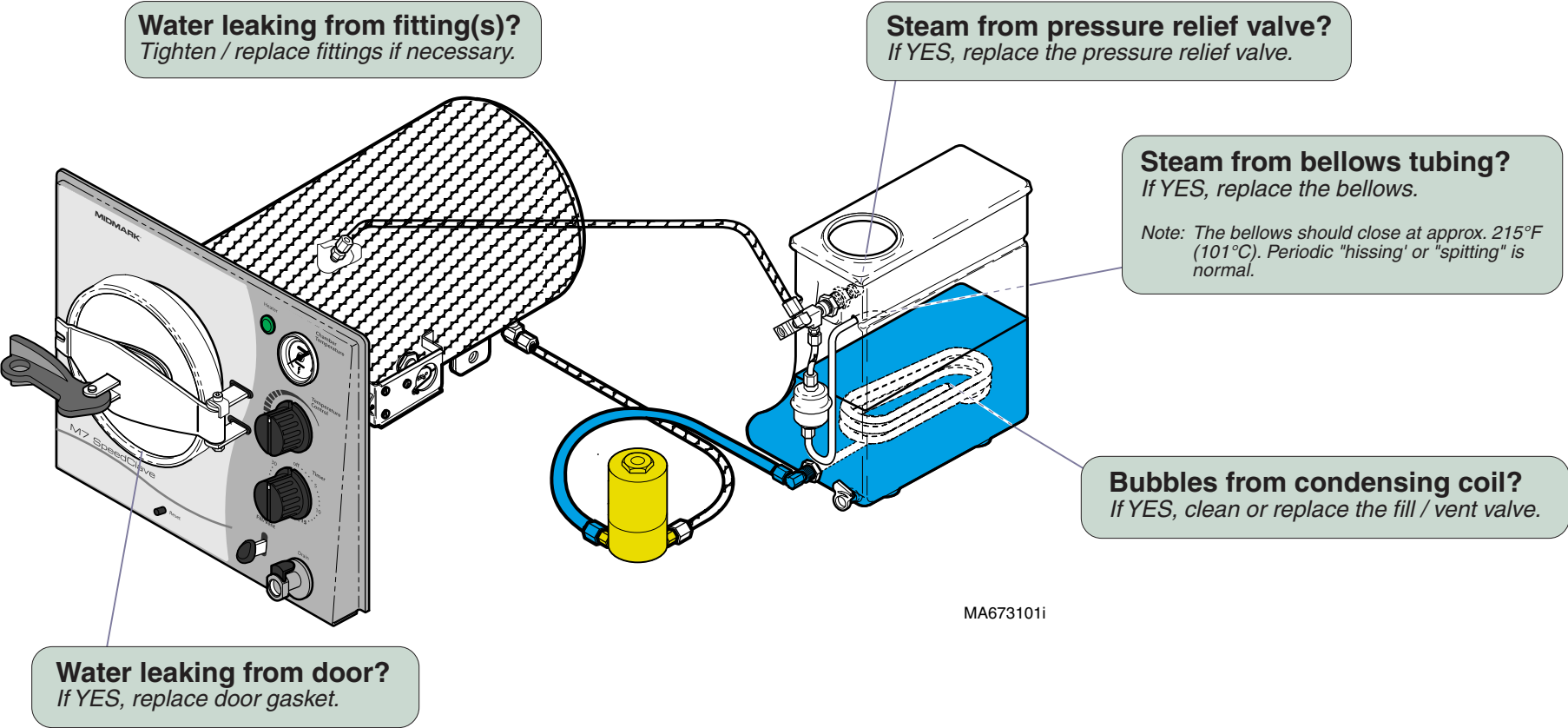
<u>Component / Procedure</u>	<u>Page</u>
Checking For Pressure Leaks .....	B-2
Fuse [M7 (-020 thru -022) <u>only</u> ] .....	B-3
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Temperature Regulator Assy. ....	B-10
Heating Element .....	B-16
Overheat Thermostats .....	B-20
Pressure Relief Valve .....	B-23
Timer Assembly .....	B-24
Timer Buzzer .....	B-28
Temperature Gauge .....	B-29
Door Assembly .....	B-30
Reservoir Tank .....	B-32
Chamber Assembly .....	B-34

# Component Testing & Repair

## Checking for Pressure Leaks

This illustration shows the areas to check for pressure leaks.

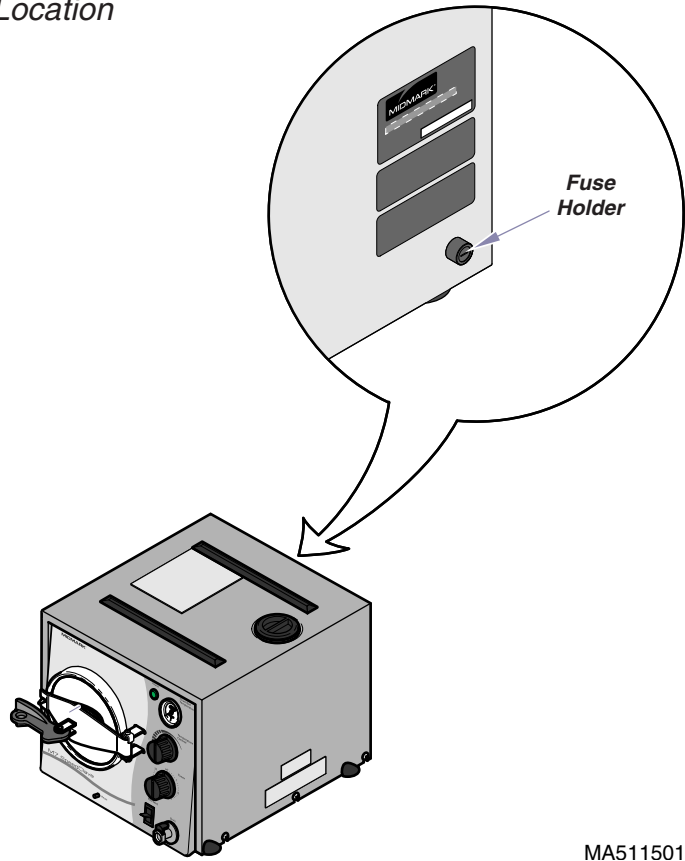
Components	Page
Bellows .....	B-4
Fill / Vent Valve: .....	B-6
Pressure Relief Valve .....	B-23
Door Assembly .....	B-30



# Component Testing & Repair

## Fuse

### Location



MA511501i

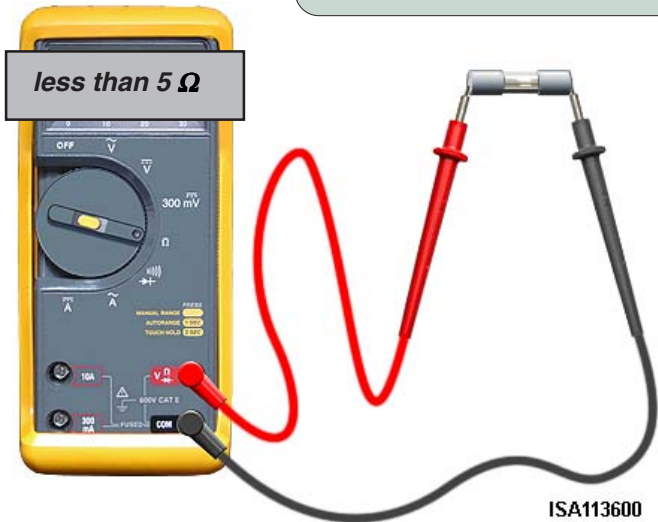
### Fuse Ratings:

115V models ..... 12 amp, 250 V, Fast-Acting, 1/4" x 1-1/4"  
230V models ..... 8 amp, 250 V, Fast-Acting, 5mm x 20mm

### Fuse Test

#### Acceptable Range

less than 5  $\Omega$



### Fuse Test

**Step 1:** Place meter probes on ends of fuse.  
[Set meter to 200 ohms ( $\Omega$ )]

### Fuse Test

**If reading is OL...**  
Replace fuse.

**If reading is within acceptable range...**  
Fuse is OK.

Models: | M7 (-020 thru -022) |  
Serial Numbers: | all |

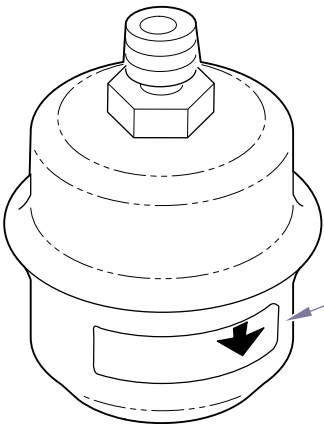
Fuse

B-3

# Component Testing & Repair

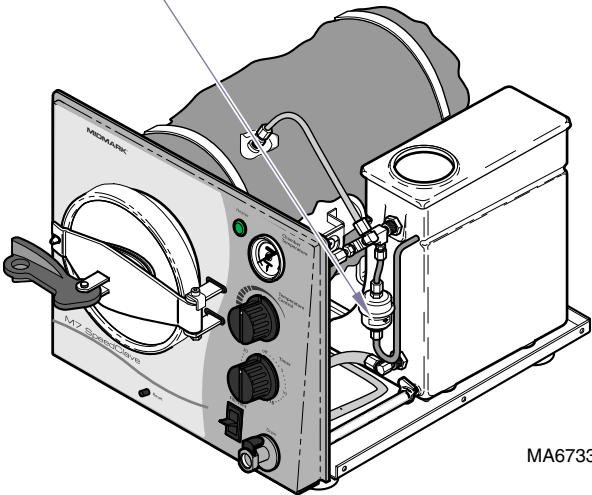
## Bellows

### Location & Function



The arrow indicates the direction of flow **toward the reservoir**.

The bellows must be oriented correctly to ensure proper operation.



MA673301i

#### **As the water in the chamber begins to boil...**

Air & steam are forced out of the chamber, thru the open bellows, and back into the reservoir.

#### **When pure steam begins flowing thru bellows...**

The bellows closes allowing pressure to build in the chamber.  
[Note: The bellows will periodically "hiss" or "spit", this is normal.]

<u>Bellows</u>	<u>Page</u>
Testing - refer to:	
Checking for Pressure Leaks .....	B-2
Replacement .....	B-5
Exploded View / Part Numbers .....	E-10

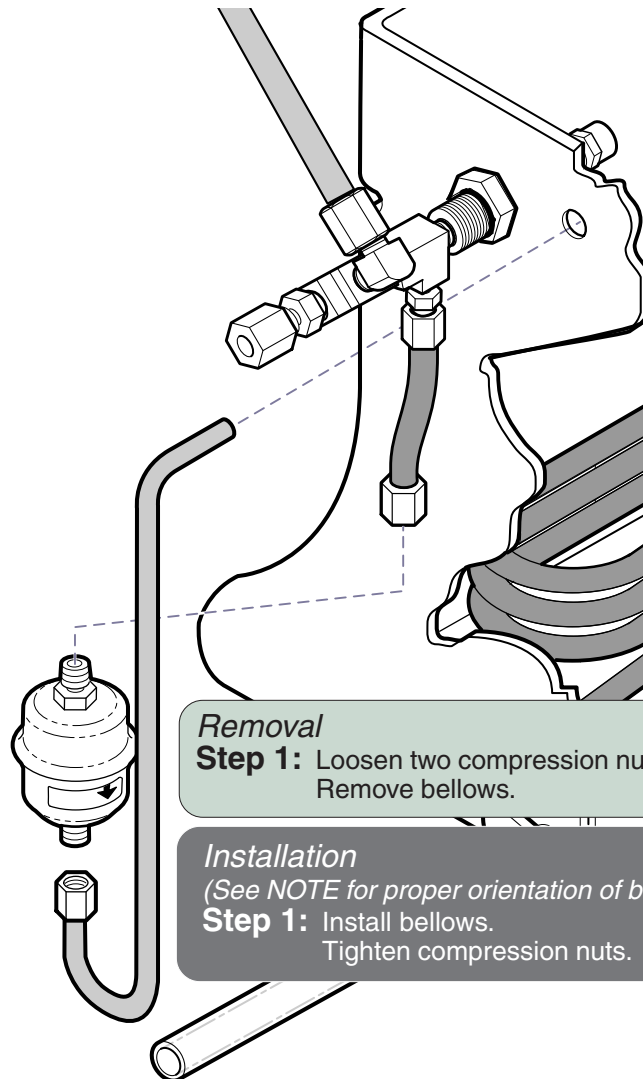
## Bellows - continued

### Replacement

**Refer to:**

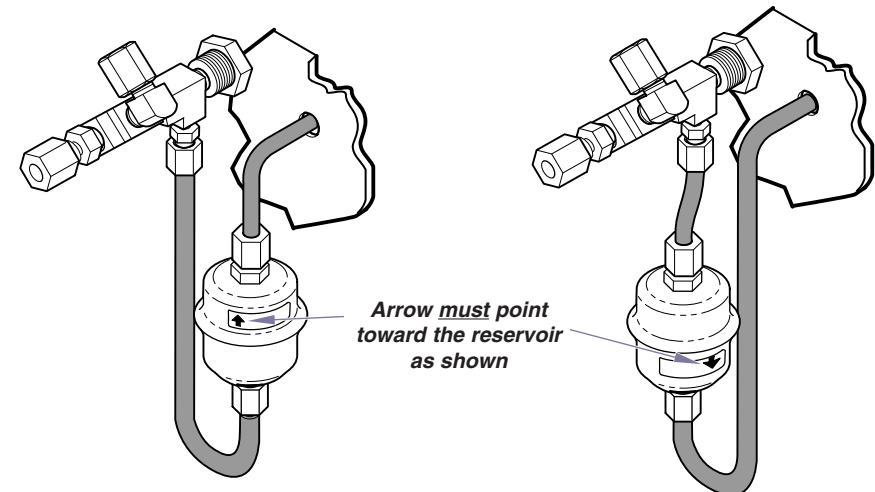
**Page**

Cover Removal..... C-2



### NOTE:

The arrow on the bellows indicates the direction of flow **toward the reservoir**.  
The bellows must be oriented correctly to ensure proper operation.



MA673401i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

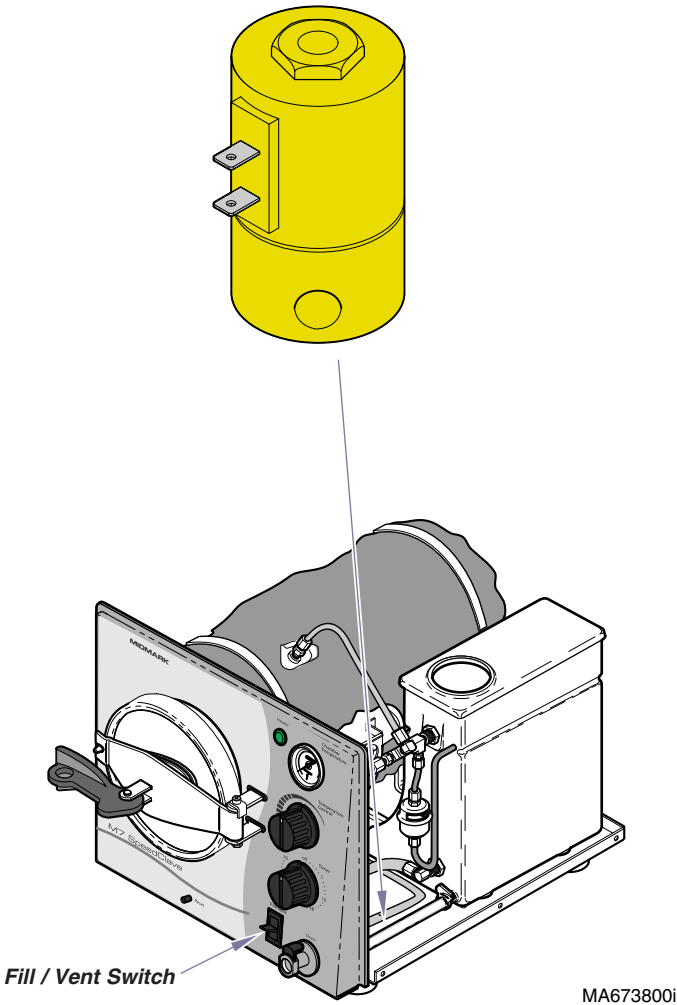
**Bellows**

**B-5**

# Component Testing & Repair

## Fill / Vent Valve

### Location & Function



<u>Fill / Vent Valve</u>	<u>Page</u>
Testing - refer to:	
<i>Checking for Pressure Leaks</i> .....	B-2
<i>Electrical Test</i> .....	B-7
Replacement .....	B-8
Disassembly / Cleaning .....	B-9
Wiring Diagrams .....	D-1
Exploded View / Part Numbers .....	E-8

**When the fill / vent switch is pressed (no pressure in chamber)...**

Current (*line voltage*) flows thru the fill/vent switch to the fill / vent valve. When voltage is applied, the (*normally closed*) fill/vent valve opens. Water from the reservoir flows thru the open valve into the chamber. The valve closes when the switch is released.

**When the fill / vent lever is pressed (chamber is pressurized)...**

Current (*line voltage*) flows thru the fill/vent switch to the fill/vent valve. When voltage is applied, the (*normally closed*) fill / vent valve opens. Water and steam from the chamber are forced thru the open valve back into the reservoir. When all of the pressure has been released, the door will "pop". The valve closes when the lever is released.

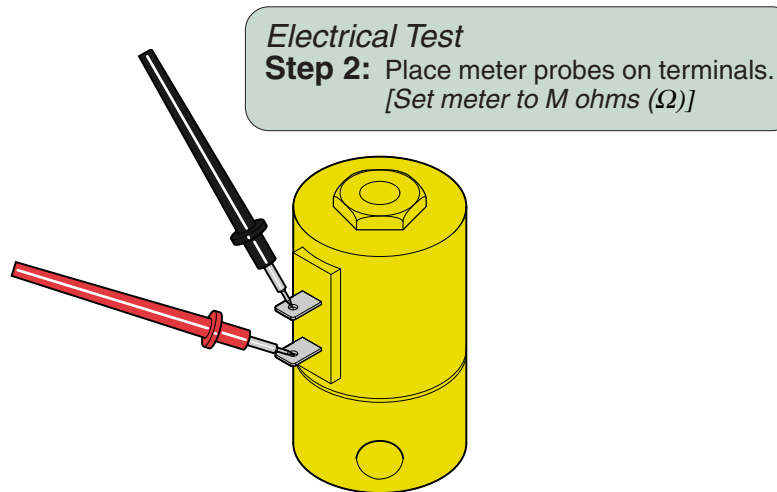
## Fill / Vent Valve - continued

### Electrical Test

Refer to:	Page
Cover Removal .....	C-2

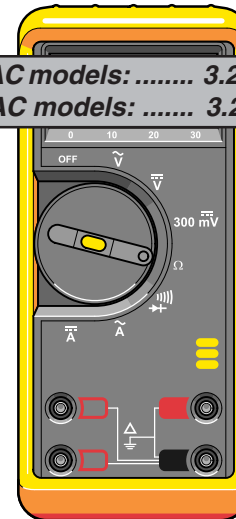
#### Electrical Test

**Step 1:** Disconnect wires from valve terminals.



#### Acceptable Range

115 VAC models: ..... 3.24 to 3.96  
230 VAC models: ..... 3.24 to 3.96



**Electrical Test**  
**If reading is out of acceptable range...**  
Replace valve.

**If reading is within acceptable range...**  
Electrical component of valve is OK.

MA674000i

<b>Models:</b>	M7 (-020 thru -022)
<b>Serial Numbers:</b>	all

Fill / Vent Valve

**B-7**

## Component Testing & Repair

### ***Fill / Vent Valve - continued***

## Replacement

**Refer to:**

Cover Removal ..... C-2

Page

.. C-2

## Removal

**Step 1:** Tag and disconnect wires from valve terminals.

## Installation

**Step 4:** Connect wires to valve terminals.

## Installation

**Step 3:** Connect compression fittings.

## Removal

**Step 2:** Disconnect compression fittings.

## Installation

**Step 1:** Install valve onto bracket. Locate "IN" port and direct flow into the reservoir as shown.

## Removal

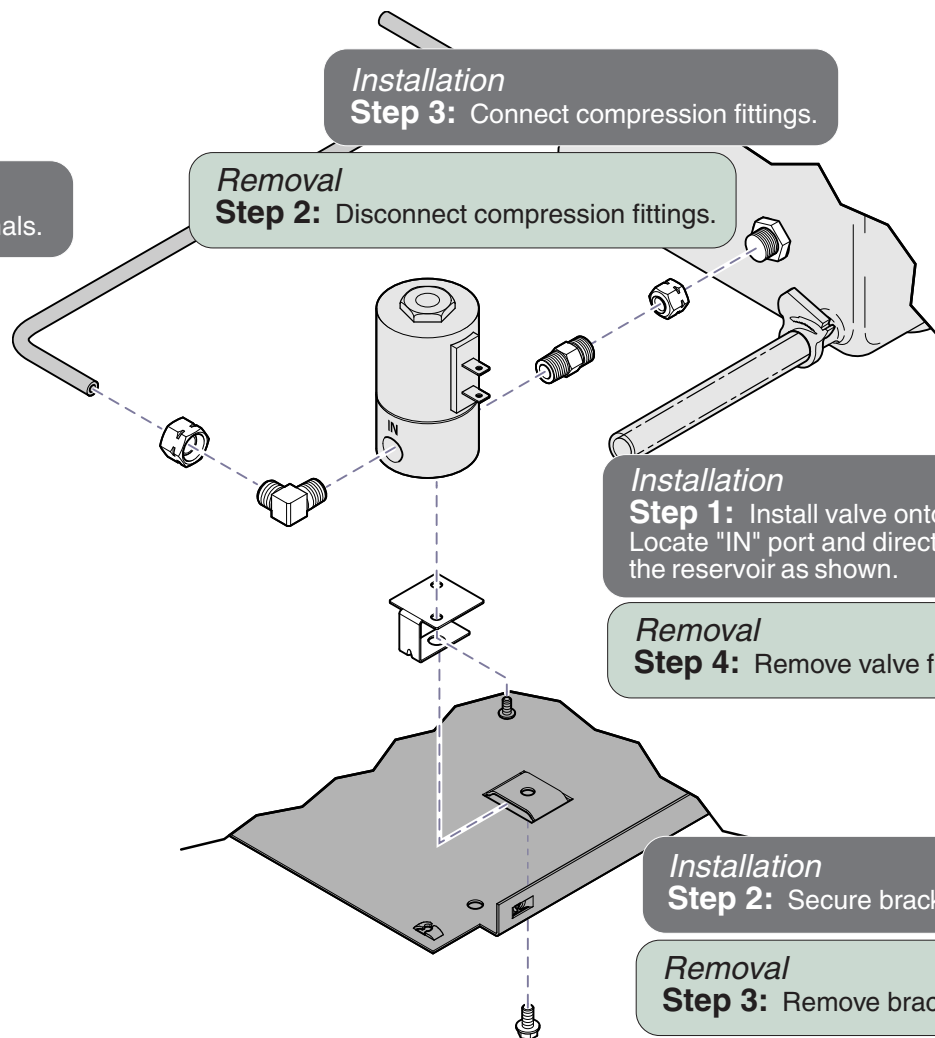
**Step 4:** Remove valve from bracket.

## Installation

**Step 2:** Secure bracket / valve to base plate.

## Removal

**Step 3:** Remove bracket / valve from base plate.



MA677901i



## Fill / Vent Valve - continued

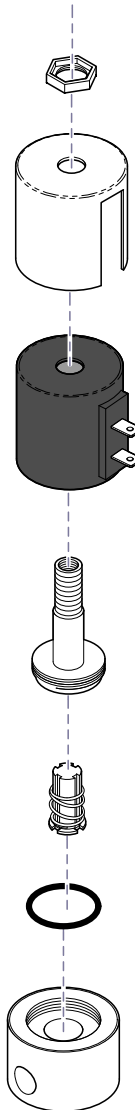
### Disassembly / Cleaning

#### Refer to:

Valve Removal ..... B-8

#### Page

*Disassembly / Cleaning*  
**Step 1:** Remove nut.  
Disassemble valve.



*Disassembly / Cleaning*  
**Step 2:** Remove any debris.  
Inspect components for damage.

MA678000i

**Models:** | M7 (-020 thru -022) |  
**Serial Numbers:** | all |

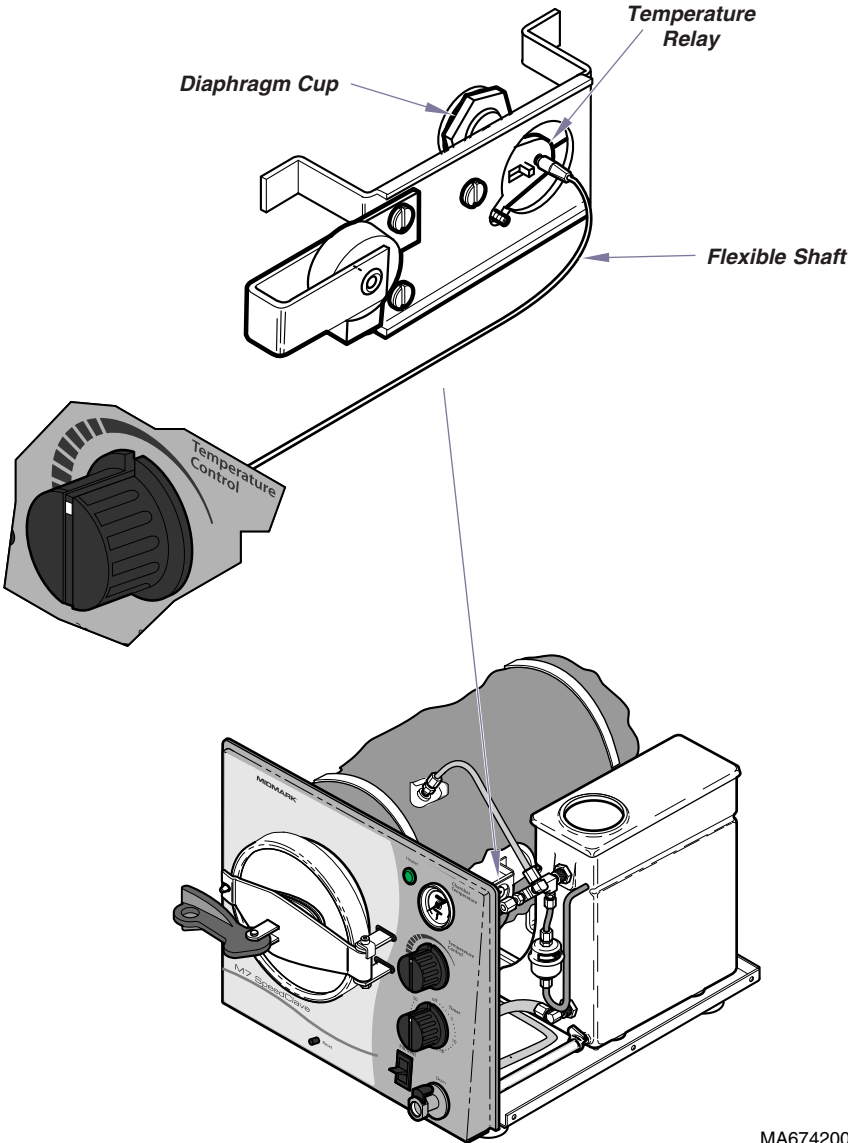
Fill / Vent Valve

B-9

# Component Testing & Repair

## Temperature Regulator Assembly

### Location & Function



MA674200i

<u>Temp. Regulator Assy.</u>	<u>Page</u>
Troubleshooting .....	B-11
Temperature Relay:	
Adjustment .....	B-12
Removal .....	B-13
Installation .....	B-14
Diaphragm Cup Replacement .....	B-15
Wiring Diagrams .....	D-1
Exploded View / Part Numbers .....	E-6

#### **When the Temperature Control knob is adjusted...**

The flexible shaft rotates, increasing or decreasing the distance between the relay contacts. This adjusts the point (*i.e. temperature*) at which the relay contacts will open & close\*.

#### **As the temperature & pressure inside the chamber increase...**

The diaphragm cup expands, pushing the relay contacts apart. When the relay contacts are open, the heating element is de-energized.

#### **As the temperature & pressure inside the chamber decrease...**

The diaphragm cup contracts, allowing the relay contacts to close. When the relay contacts are closed, the heating element is energized.

## Temperature Regulator Assembly - continued

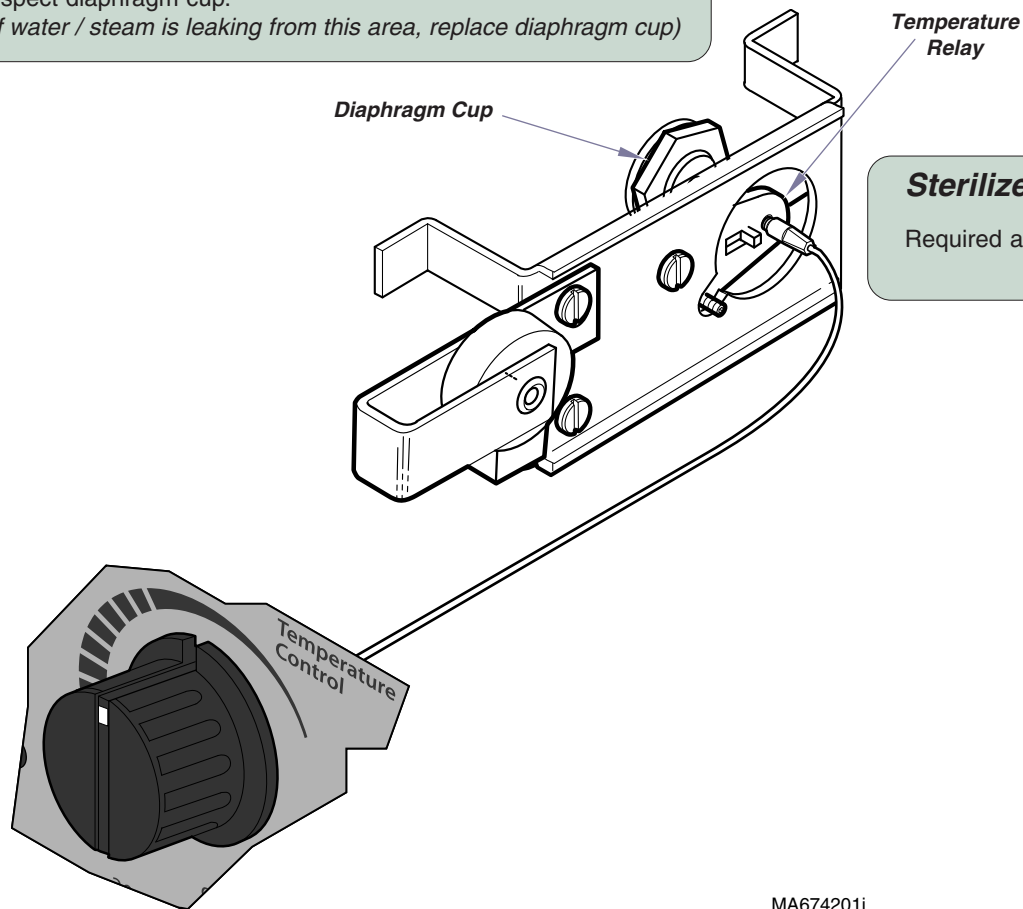
### Troubleshooting

Refer to:	Page
Relay Adjustment .....	B-12
Relay Removal .....	B-13
Diaphragm Cup Replacement .....	B-15

#### **Sterilizer shuts down before timer setting expires...**

Required action:    Inspect relay.  
                              *(If contacts are corroded or "fused" together - replace relay)*

                              Inspect diaphragm cup.  
                              *(If water / steam is leaking from this area, replace diaphragm cup)*



#### **Sterilizer does not reach desired temperature...**

Required action:    Perform *Relay Adjustment*.  
                              Replace relay if necessary.

MA674201i

**Models:** | M7 (-020 thru -022) |  
**Serial Numbers:** | all |

**Temperature Regulator  
Assembly**

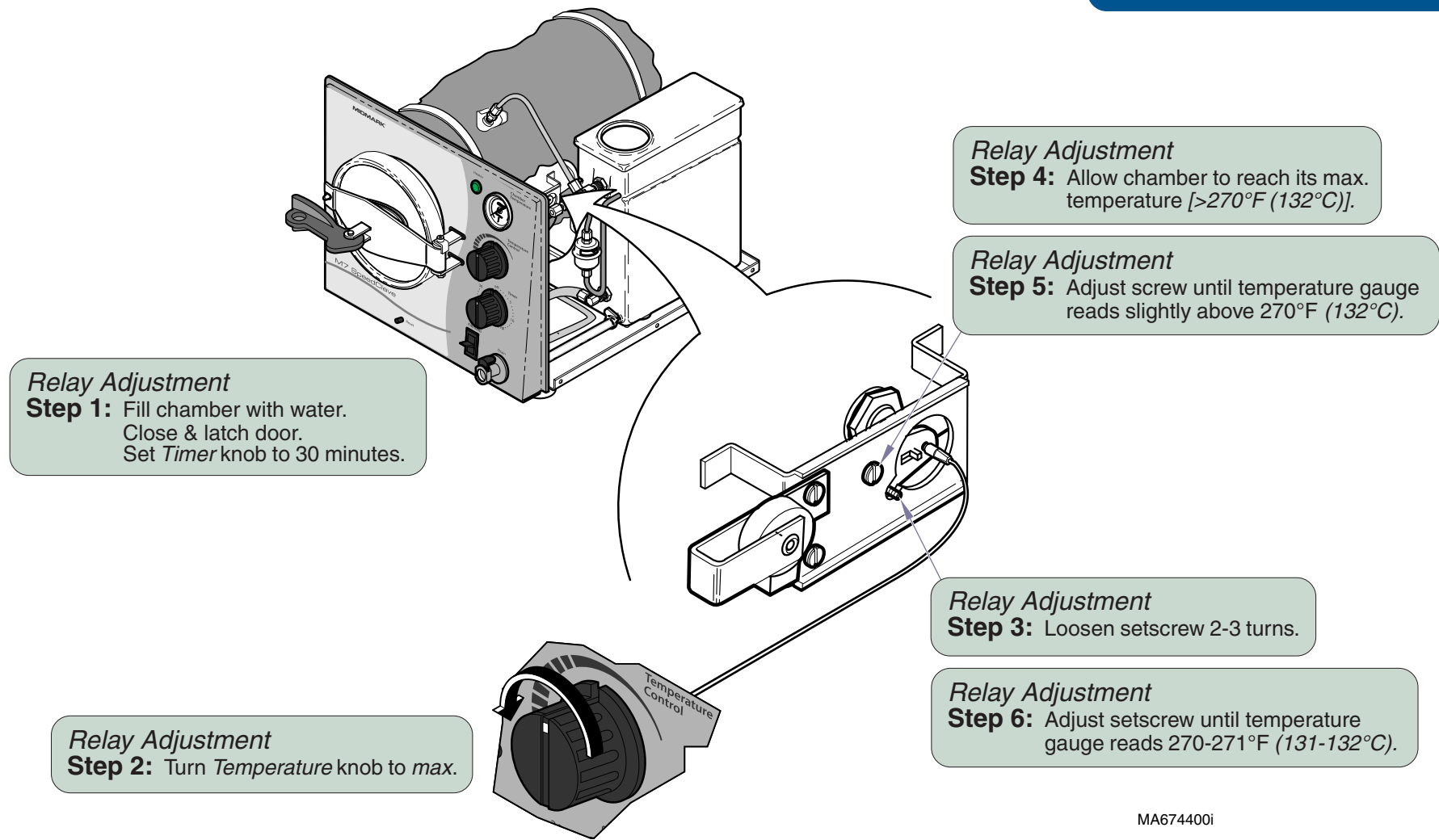
**B-11**

# Component Testing & Repair

## Temperature Regulator Assembly - continued

### Relay Adjustment

Refer to:	Page
Cover Removal .....	C-2



MA674400i

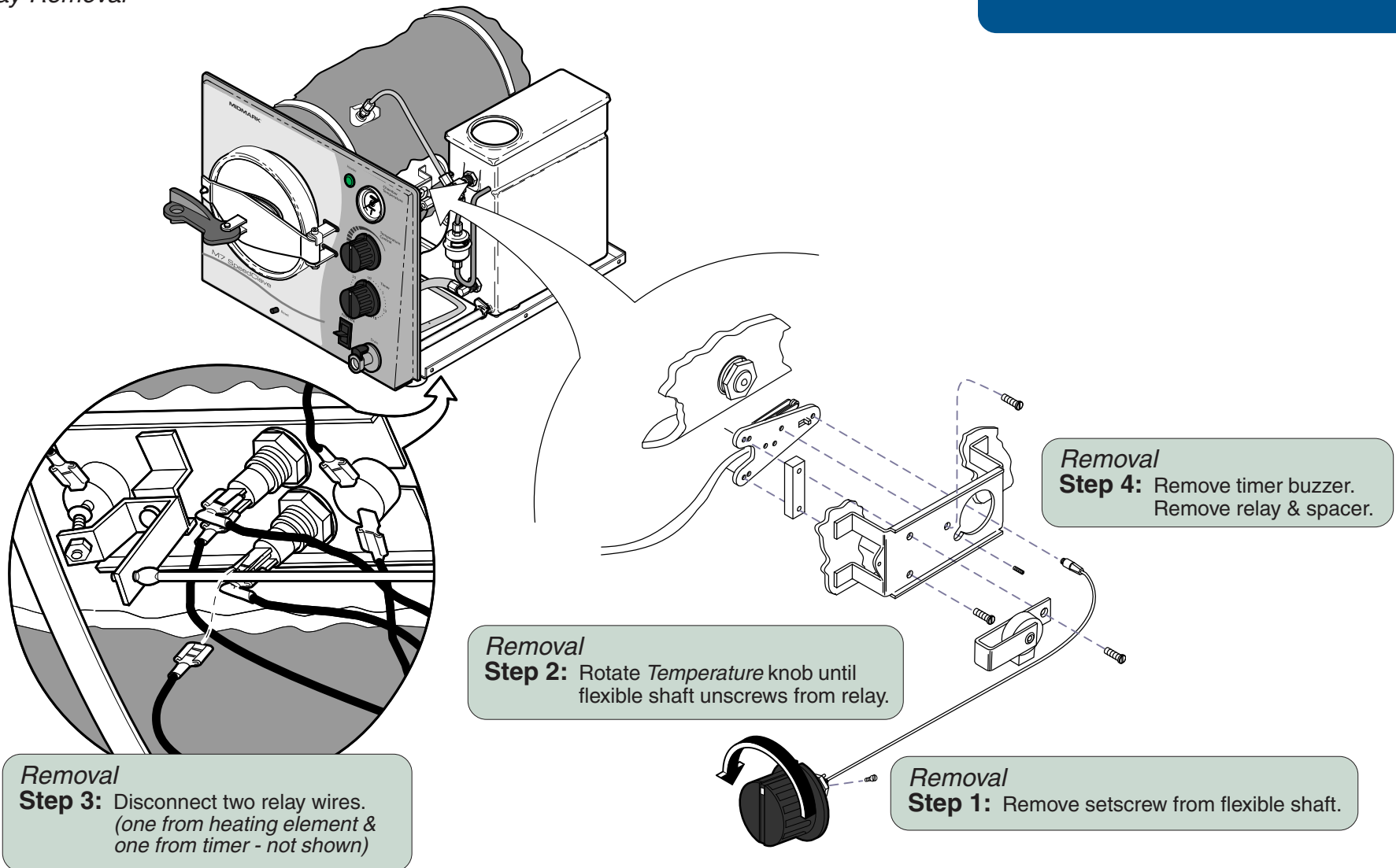
## Temperature Regulator Assembly - continued

### Relay Removal

**Refer to:**

**Page**

Cover Removal ..... C-2



MA674500i

**Models:** | M7 (-020 thru -022) |  
**Serial Numbers:** | all |

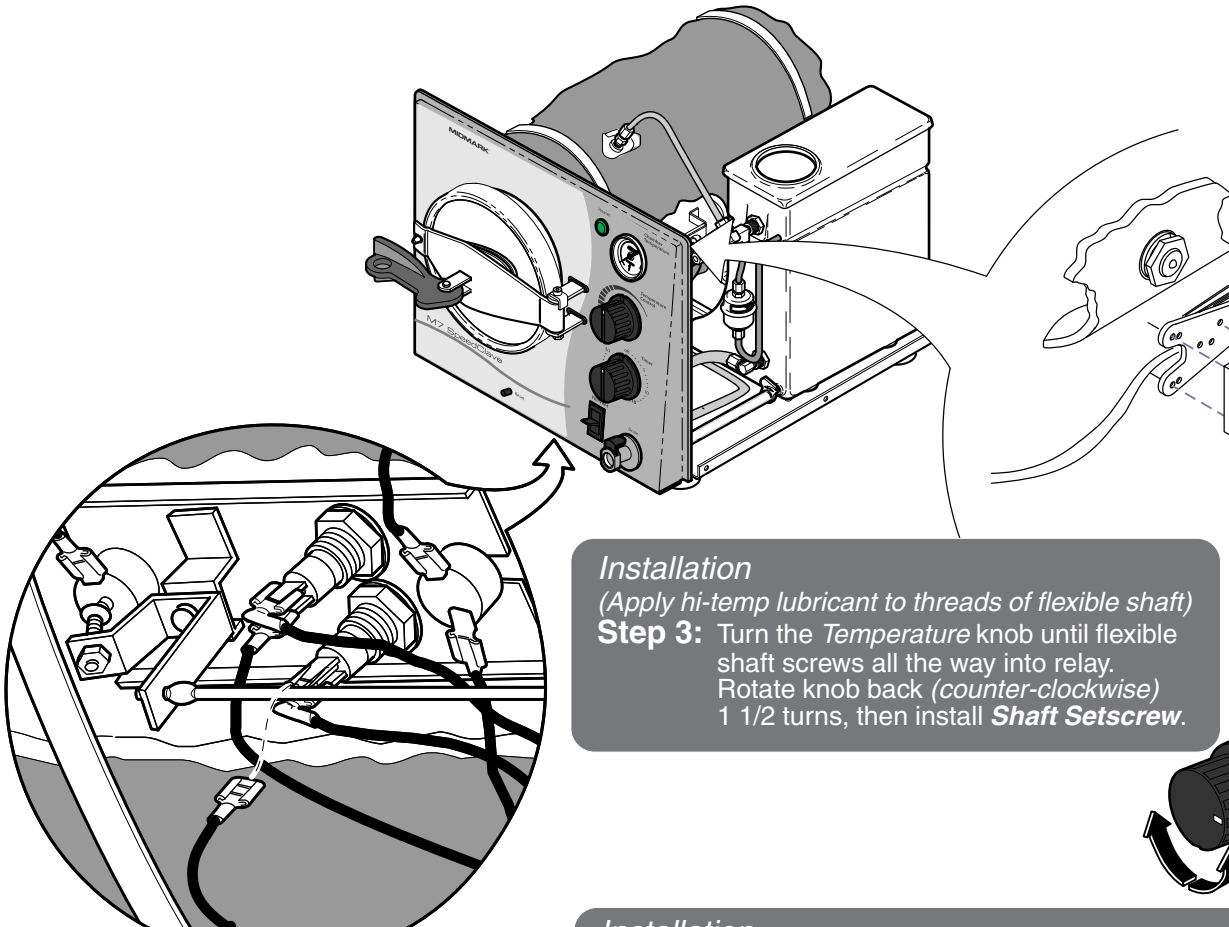
**Temperature Regulator  
Assembly**

# Component Testing & Repair

## Temperature Regulator Assembly - continued

### Relay Installation

Refer to:	Page
Relay Removal .....	B-13
Relay Adjustment .....	B-12



**Installation**  
**Step 1:** Install relay & spacer.  
Install timer buzzer.

**Note:** Do not tighten **Adjustment Screw**.  
**Fine Adjustment Setscrew** should be flush with bracket.

**Adjustment Screw**

**Fine Adjustment Setscrew**

**Installation**  
(Apply hi-temp lubricant to threads of flexible shaft)  
**Step 3:** Turn the *Temperature* knob until flexible shaft screws all the way into relay. Rotate knob back (counter-clockwise) 1 1/2 turns, then install **Shaft Setscrew**.

**Shaft Setscrew**

**Knob Setscrew**

**Installation**  
**Step 4:** Turn the *Temperature* knob counter-clockwise until it hits the stop. Hold knob in place, then loosen **Knob Setscrew**. Rotate knob so that white mark is at 3:00 position, then tighten knob setscrew.

**Installation**  
**Step 2:** Connect two relay wires.  
(one to heating element & one to timer - not shown)

**Installation**  
**Step 5:** Perform *Relay Adjustment*.

MA674501i

## Temperature Regulator Assembly - continued

### Diaphragm Cup Replacement

#### Removal

**Step 1:** Remove relay.

#### Installation

**Step 3:** Install relay.

#### Removal

**Step 2:** Remove nut & lockwasher.

#### Installation

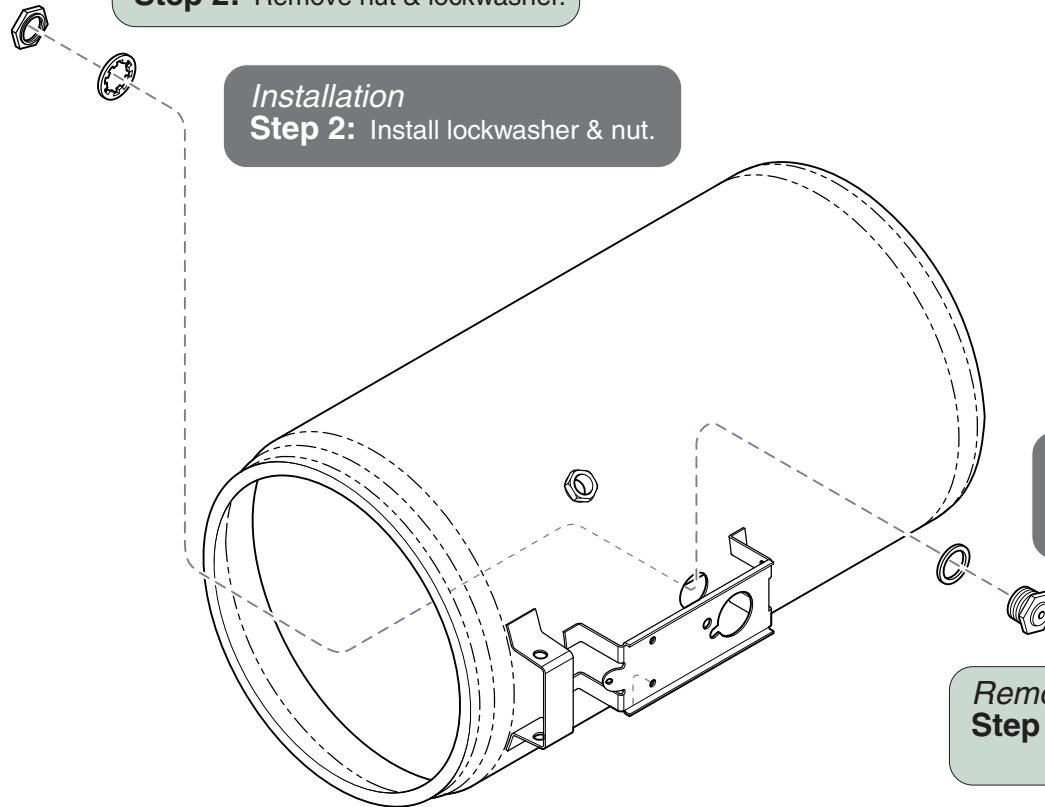
**Step 2:** Install lockwasher & nut.

#### Installation

**Step 1:** Install gasket onto diaphragm cup.  
Install diaphragm cup.

#### Removal

**Step 3:** Remove diaphragm cup  
Remove gasket from diaphragm cup.



MA674700i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

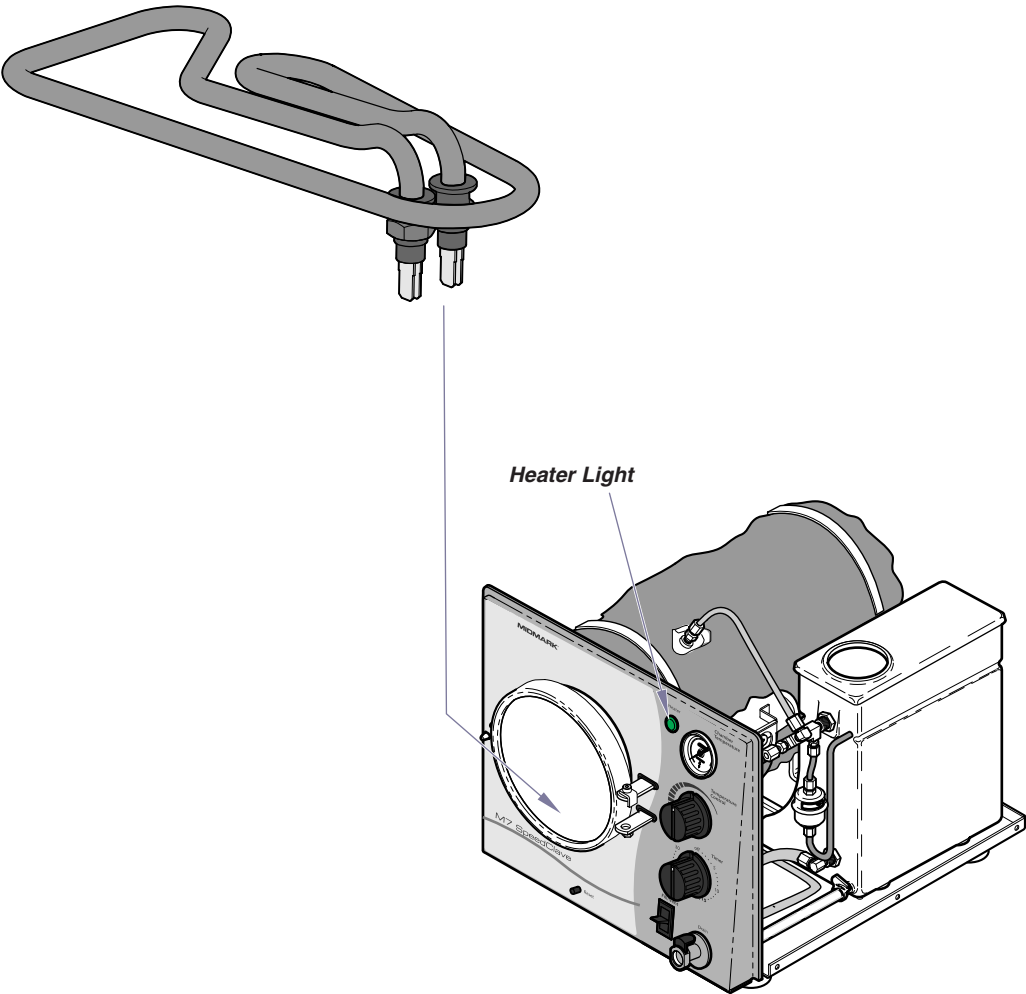
**Temperature Regulator  
Assembly**

**B-15**

# Component Testing & Repair

## Heating Element

### Location & Function



Heating Element	Page
Resistance Test .....	B-17
Replacement .....	B-18
Wiring Diagrams .....	D-1
Exploded View / Part Numbers .....	E-12

### When the timer is turned ON...

The timer supplies current to the temperature relay. If the chamber temperature is lower than the temperature knob setting\*, the relay contacts are closed. When these contacts are closed, current flows thru the relay to energize the heating element and the heater light.

When the chamber temperature reaches the temperature knob setting, the relay contacts open, and voltage is removed from the heating element & heater light.

[\* The minimum temperature knob setting is approx. 220°F (104°C)]

### When the timer is OFF...

Timer contacts to the temperature relay open, stopping the current flow to the heater light & heating element.

MA674800i



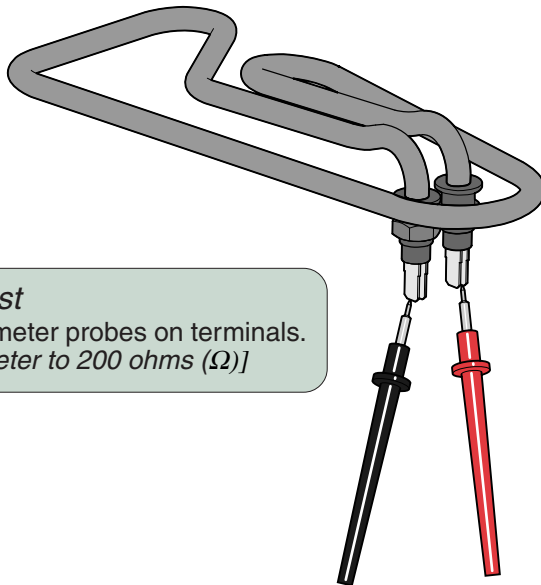
## Heating Element - continued

### Resistance Test

**Refer to:** **Page**  
Cover Removal ..... C-2

#### Resistance Test

**Step 1:** Disconnect wires from heating element terminals.

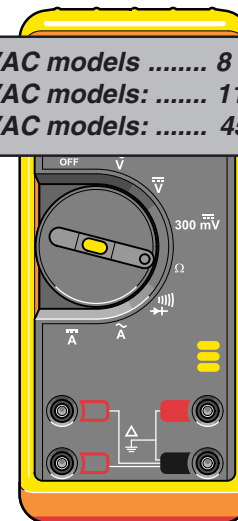


#### Resistance Test

**Step 2:** Place meter probes on terminals.  
[Set meter to 200 ohms ( $\Omega$ )]

#### Acceptable Range

100 VAC models ..... 8 to 10  
115 VAC models: ..... 11 to 13  
230 VAC models: ..... 45 to 51



#### Resistance Test

**If reading is out of acceptable range...**  
Replace heating element.

**If reading is within acceptable range...**  
Heating element is OK.

MA674900i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Heating Element

B-17

# Component Testing & Repair

## Heating Element - continued

### Replacement

Refer to:	Page
Cover Removal .....	C-2
Wiring Diagrams .....	D-1

#### Removal

**Step 1:** Disconnect power to sterilizer.  
Drain all water from reservoir.

#### Removal

**Step 2:** Remove inspection cover.

#### Installation

**Step 4:** Install inspection cover.

#### Installation

**Step 2:** Install two flat washers, lockwashers, & nuts.

*Note:* Hold heating element in place when tightening nuts.

#### Removal

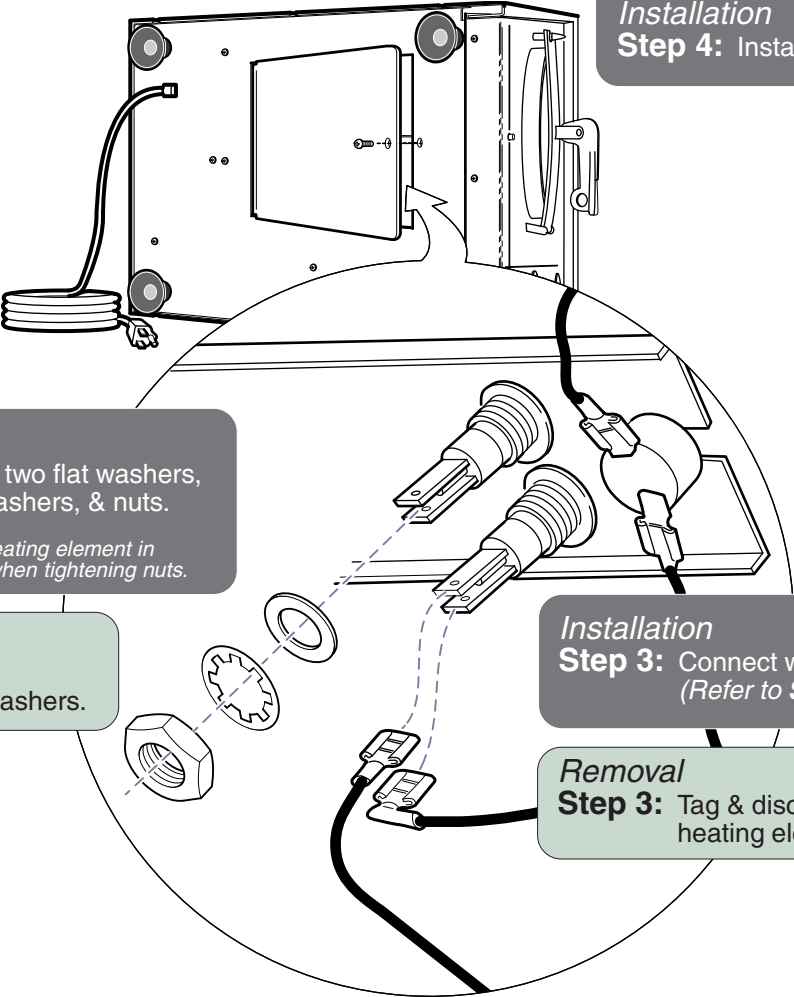
**Step 4:** Remove two nuts, lockwashers & flat washers.

#### Installation

**Step 3:** Connect wires to heating element terminals.  
(Refer to **Section D** for wiring diagrams)

#### Removal

**Step 3:** Tag & disconnect wires from heating element terminals.



MA675000i

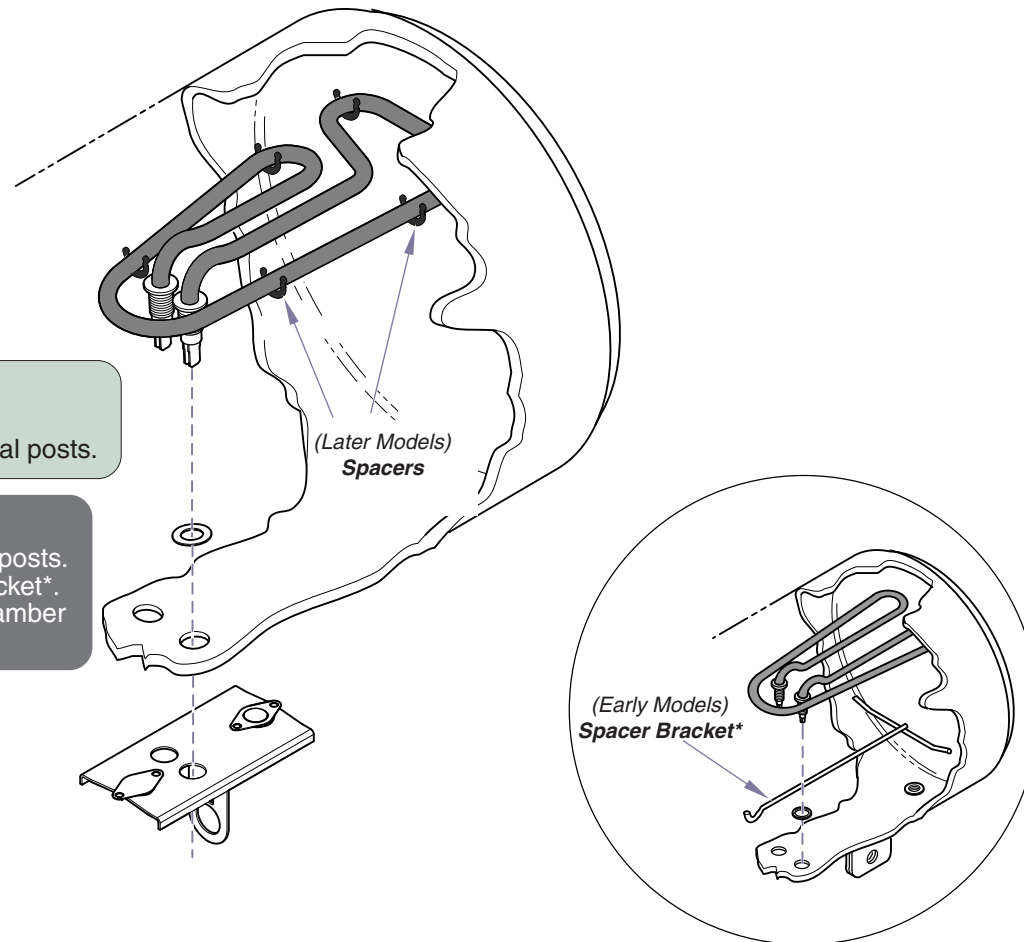
## Heating Element - continued

### Replacement - continued

**Refer to:** **Page**  
Cover Removal ..... C-2

**Removal**  
**Step 5:** Remove heating element.  
Remove gaskets from terminal posts.

**Installation**  
**Step 1:** Install gaskets onto terminal posts.  
Install spacers or spacer bracket\*.  
Insert terminal posts thru chamber & thermostat bracket.



\* Spacer Bracket must be installed above gaskets to prevent leaking.

MA675200i

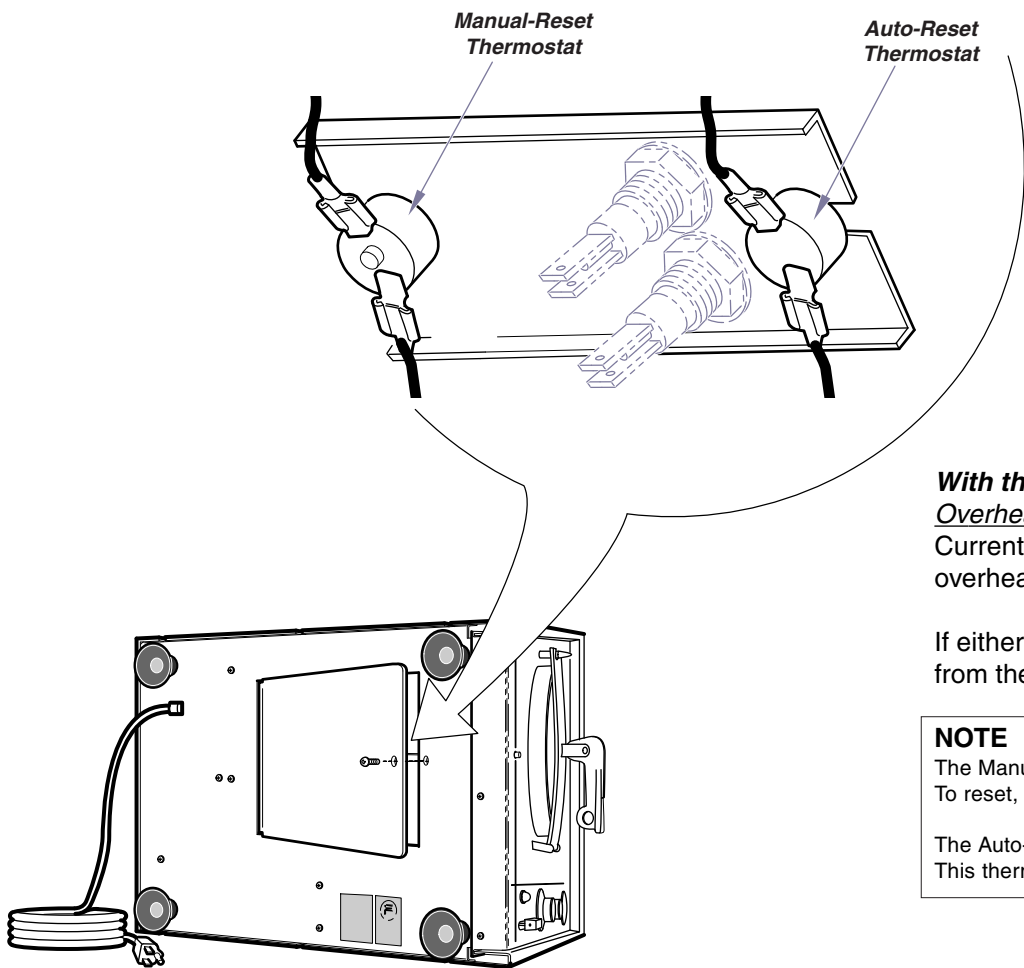
**Models:** | M7 (-020 thru -022) |  
**Serial Numbers:** | all |

**Heating Element**

# Component Testing & Repair

## Overheat Thermostats

### Location & Function



MA675300i

Overheat Thermostats	Page
Resistance Test .....	B-21
Replacement .....	B-22
Wiring Diagrams .....	D-1
Exploded View / Part Numbers .....	E-12

**With the power cord properly connected...**

Overheat Thermostats

Current (115 / 230 VAC) continuously flows thru the two (normally closed) overheat thermostats. This current supplies power to the timer.

If either thermostat opens (overheat or malfunction), voltage is removed from the timer until the thermostat is reset or replaced.

**NOTE**

The Manual-Reset Thermostat contacts open at approximately 285°F (140°C). To reset, allow unit to cool, then press RESET button on front of unit.

The Auto-Reset Thermostat contacts open at approximately 295°F (146°C). This thermostat automatically resets when the unit cools to approx. 265°F (129°C).

## Overheat Thermostats - continued

Refer to:	Page
Cover Removal .....	C-2

### Resistance Test

#### Attention!

Inspect thermostat for physical damage (ex. cracked plastic).  
If damage is apparent, replace thermostat

#### Resistance Test

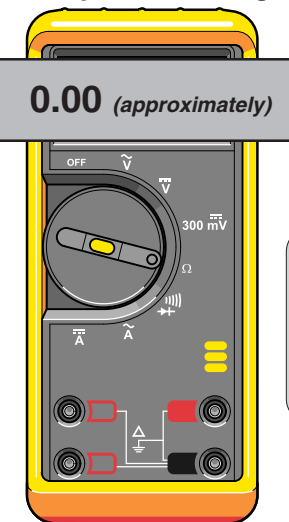
**Step 1:** Disconnect wires from thermostat terminals.



#### Resistance Test

**Step 2:** Place meter probes on terminals.  
[Set meter to 200 ohms ( $\Omega$ )]

#### Acceptable Reading



#### Resistance Test

**If reading is (approximately) 0.00 ...**  
Thermostat is good.

**If reading is OL...**  
Replace thermostat.

<b>Models:</b>	<b>M7 (-020 thru -022)</b>
<b>Serial Numbers:</b>	<b>all</b>

**Overheat  
Thermostats**

# Component Testing & Repair

## Overheat Thermostats - continued

### Replacement

<b>Refer to:</b>	<b>Page</b>
Wiring Diagrams .....	D-1

**Removal**  
**Step 1:** Disconnect power to sterilizer.  
Drain all water from reservoir.

**Installation**  
**Step 1:** Install thermostat.

**Removal**  
**Step 4:** Disconnect wires.  
Remove thermostat.

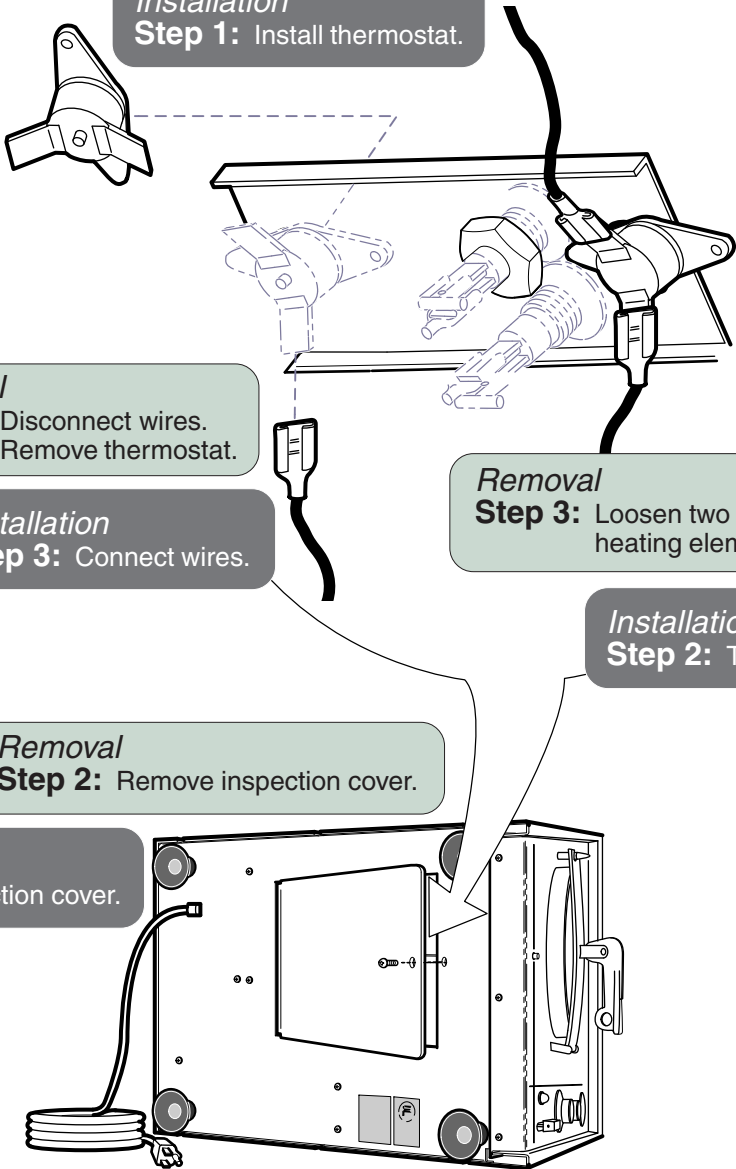
**Installation**  
**Step 3:** Connect wires.

**Removal**  
**Step 3:** Loosen two nuts on  
heating element posts.

**Installation**  
**Step 2:** Tighten two nuts.

**Removal**  
**Step 2:** Remove inspection cover.

**Installation**  
**Step 4:** Install inspection cover.



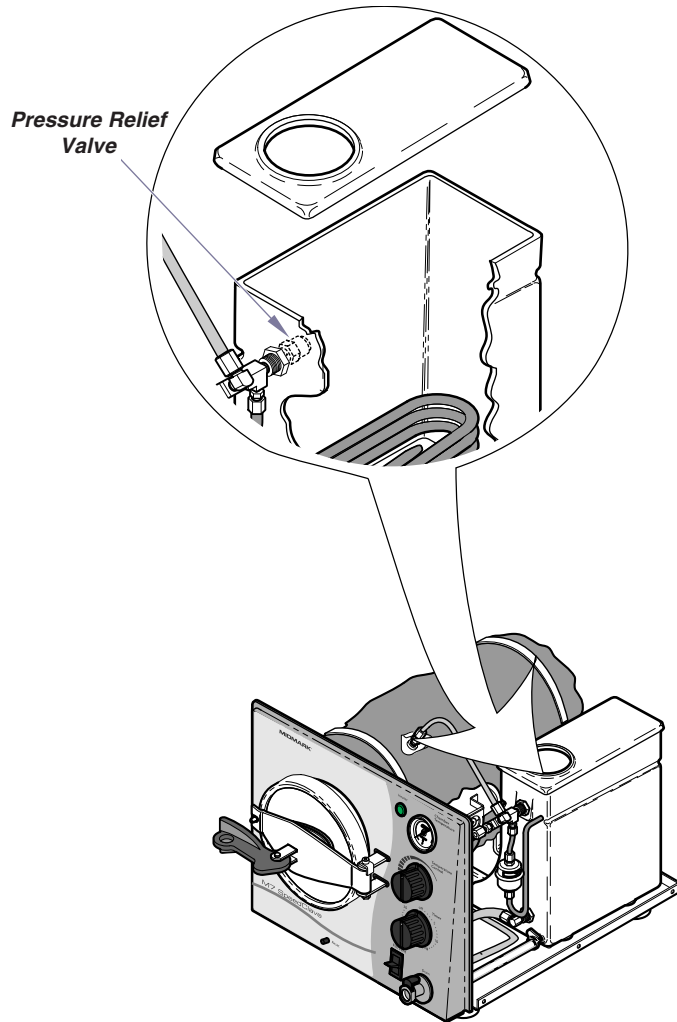
MA675500i

<b>Models:</b>	M7 (-020 thru -022)		
<b>Serial Numbers:</b>	all		

## Pressure Relief Valve

### Location & Function

**If the pressure in the chamber exceeds 34 psi (234kPa)...**  
The pressure relief valve opens to prevent unsafe conditions.



### Replacement

#### Pressure Relief Valve

#### Page

Testing - refer to:

Checking for Pressure Leaks ..... B-2

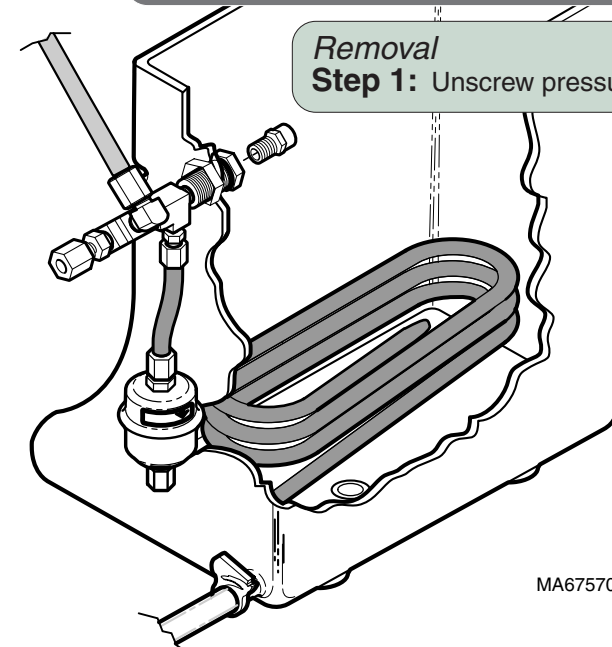
Exploded View / Part Numbers ..... E-7

#### *Installation*

**Step 1:** Apply hi-temp sealant to valve threads.  
Install valve.

#### *Removal*

**Step 1:** Unscrew pressure relief valve.



MA675700i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

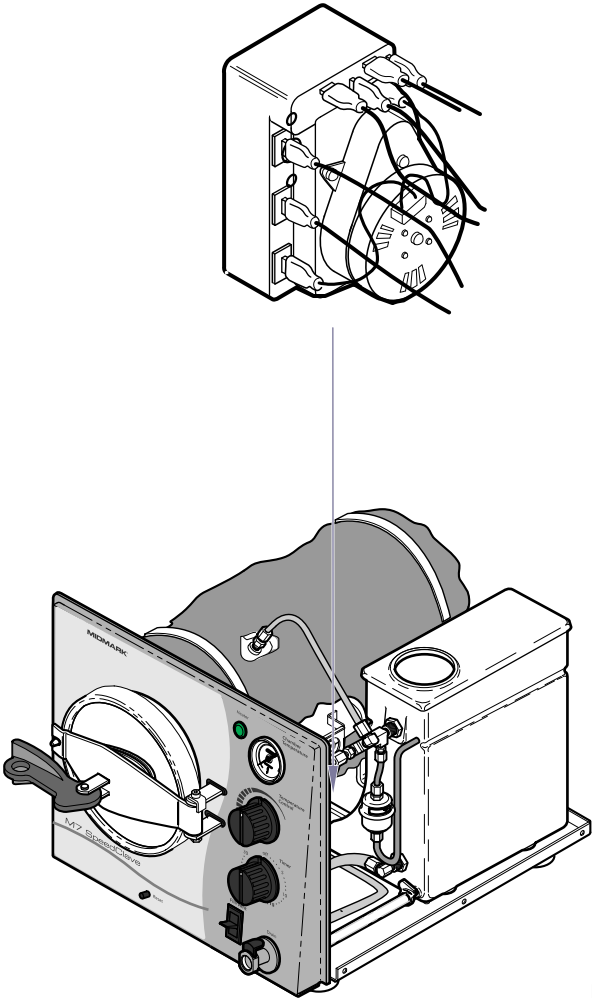
**Pressure Relief Valve**

**B-23**

# Component Testing & Repair

## Timer

### Location & Function



MA675800i

Timer	Page
Supply Voltage Test .....	B-25
Output Voltage Test .....	B-26
Replacement .....	B-27
Wiring Diagrams .....	D-1
Exploded View / Part Numbers .....	E-11

**NOTE**  
Current is supplied to the timer thru the two overheat thermostats.

**When the timer is turned ON...**  
The timer contacts to the timer motor & the temperature relay close, and voltage is supplied to these components. When voltage is applied to the timer motor, the time setting counts down.  
(The contacts to the timer buzzer remain open).

**When the timer setting expires...**  
The timer contacts to the temperature relay open, stopping the current flow to the relay.  
  
The timer contacts to the buzzer close for one minute. Current flows to the buzzer, resulting in a audible signal. After one minute, the contacts to the timer motor & the buzzer open, stopping the current flow to these two components.



## Timer - continued

### Supply Voltage Test

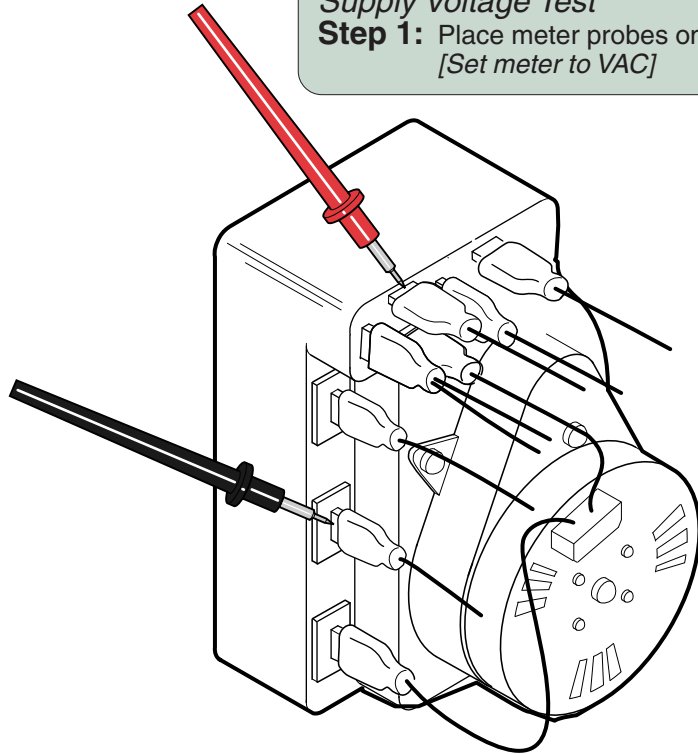


#### Caution

This test must be performed with the power cord connected.

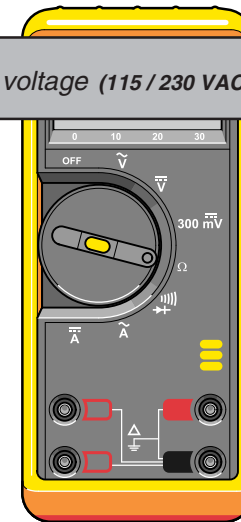
#### Supply Voltage Test

**Step 1:** Place meter probes on terminals as shown.  
[Set meter to VAC]



#### Acceptable Range

line voltage (115 / 230 VAC  $\pm 10\%$ )



MA676000i

**Supply Voltage Test**  
**If reading is within range...**  
Perform Output Voltage Test.

**If reading is out of range...**  
Check voltage supply.  
(overheat thermostats, fuse, etc.)

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Timer

# Component Testing & Repair

## Timer - continued

Output Voltage Test (perform Supply Voltage Test first)

Refer to:	Page
Cover Removal .....	C-2
Supply Voltage Test .....	B-25

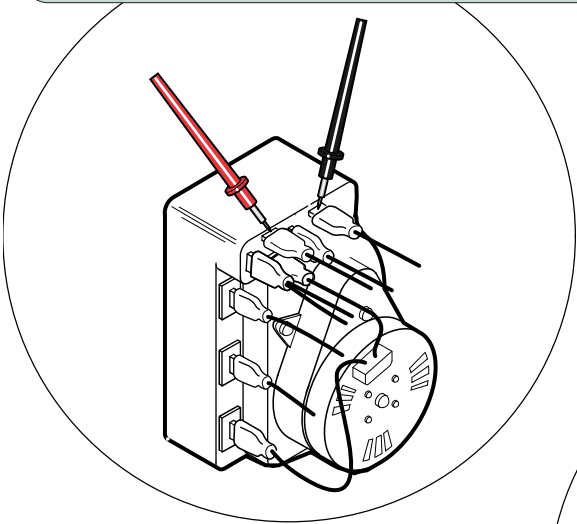


### Caution

This test must be performed with the power cord connected.

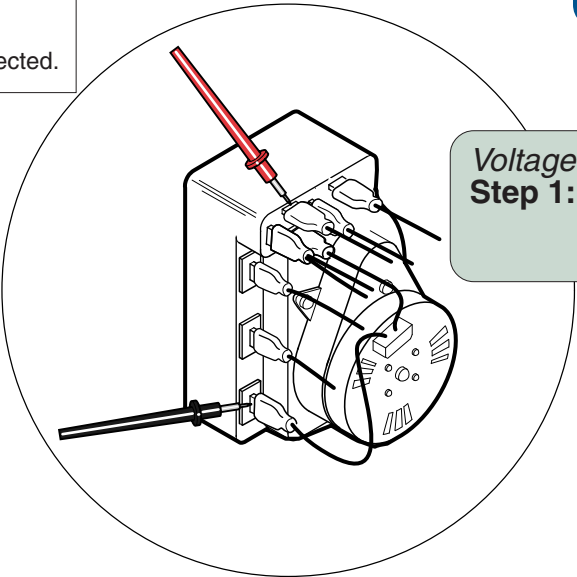
### Voltage to Temp. Relay

**Step 1:** Turn timer knob to 10 minutes.  
Place meter probes on terminals as shown.  
[Set meter to VAC]



### Voltage to Timer Motor

**Step 1:** Turn timer knob to 10 minutes.  
Place meter probes on terminals as shown.  
[Set meter to VAC]



### Acceptable Range

line voltage (115 / 230 VAC  $\pm 10\%$ )



MA675900i

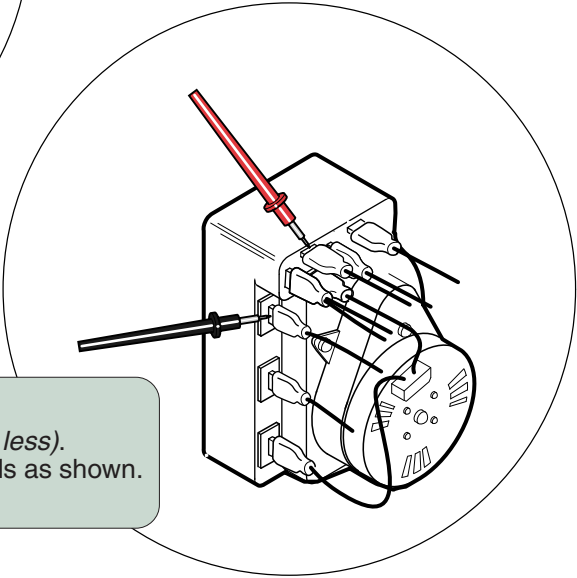
### Output Voltage Test

If reading is within range...  
Timer is functioning properly.

If reading is out of range...  
Replace timer.

### Voltage to Timer Buzzer

**Step 1:** Turn timer knob to 1 minute (or less).  
Place meter probes on terminals as shown.  
[Set meter to VAC]

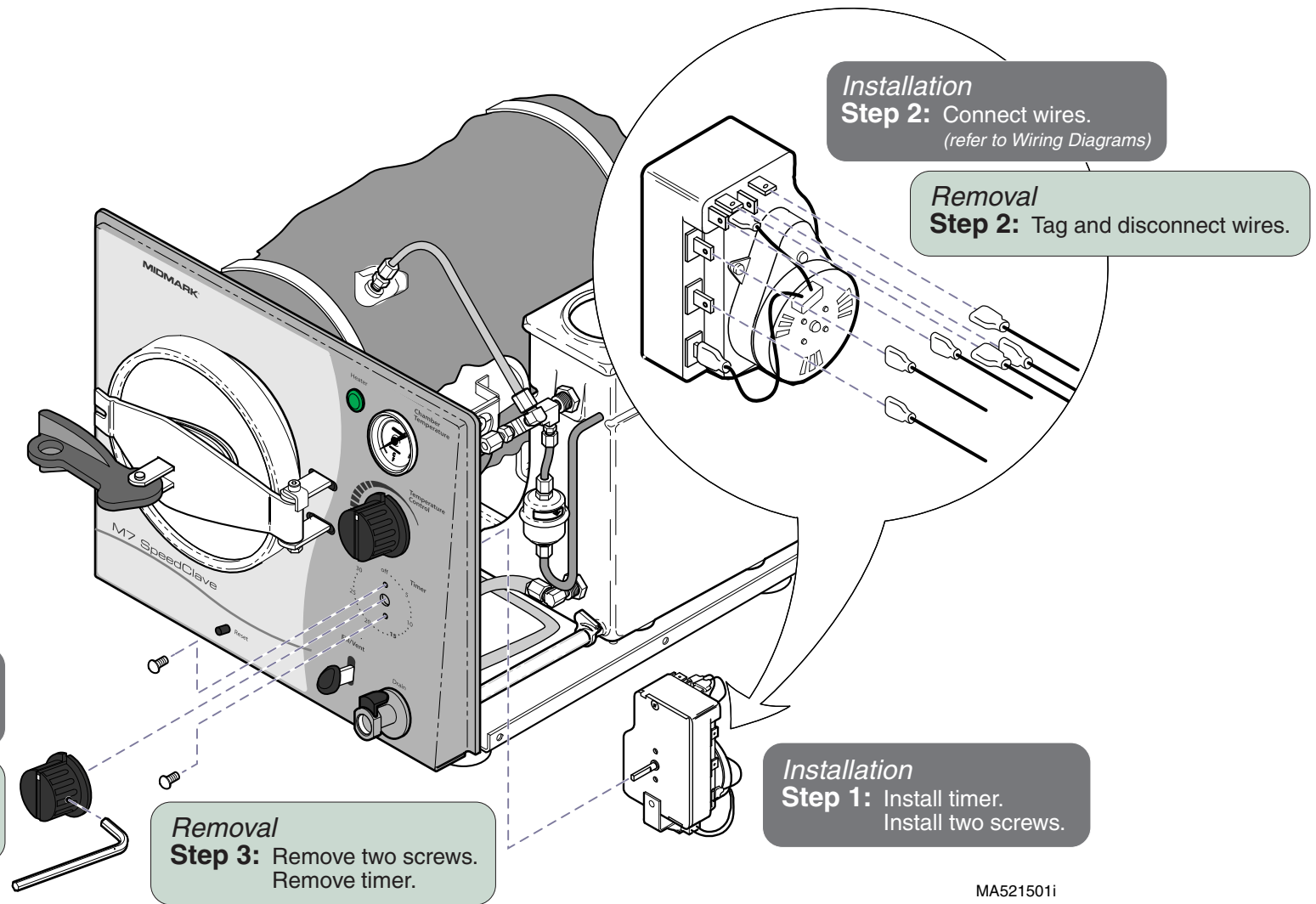


# Component Testing & Repair

## Timer - continued

### Replacement

Refer to:	Page
Cover Removal .....	C-2
Wiring Diagrams .....	D-1



**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Timer

B-27

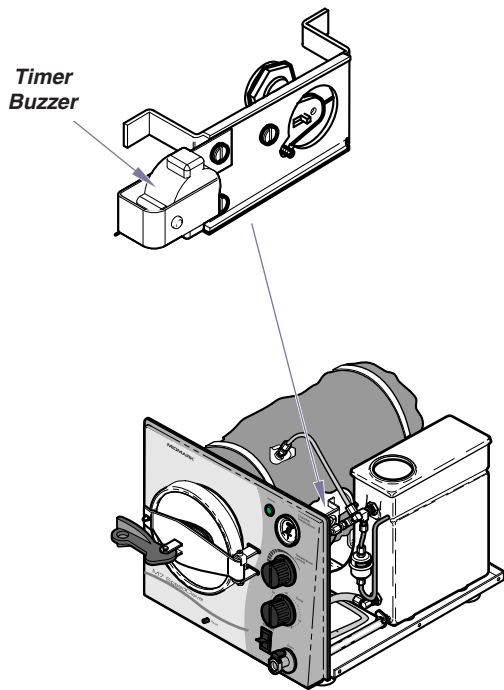
# Component Testing & Repair

## Timer Buzzer

### Location & Function

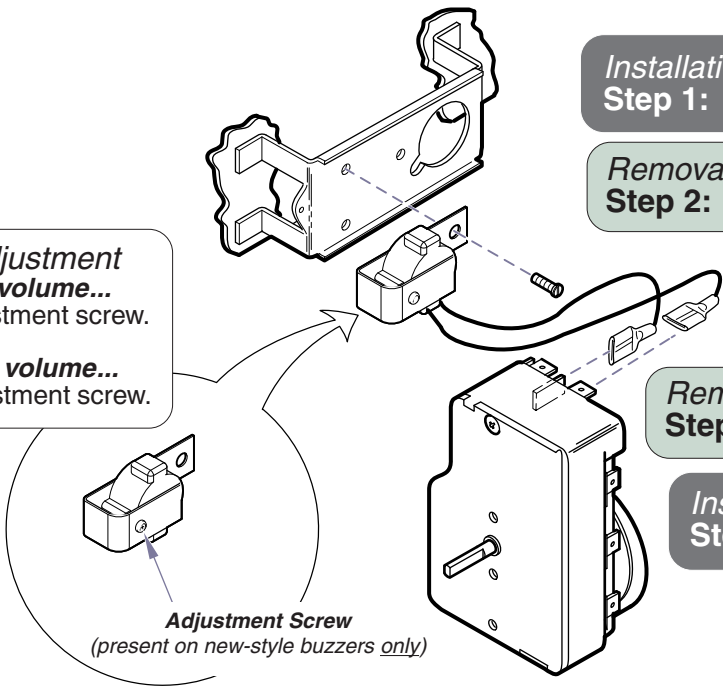
**When the timer setting expires...**

Timer contacts to the buzzer close *for one minute*.  
Current flows to the buzzer, causing an audible signal.



### Replacement & Volume Adjustment

**Volume Adjustment**  
**To increase volume...**  
Loosen adjustment screw.  
**To decrease volume...**  
Tighten adjustment screw.



MA676100i

Timer Buzzer	Page
Testing - refer to:	
Timer .....	B-26
Exploded View / Part Numbers .....	E-11

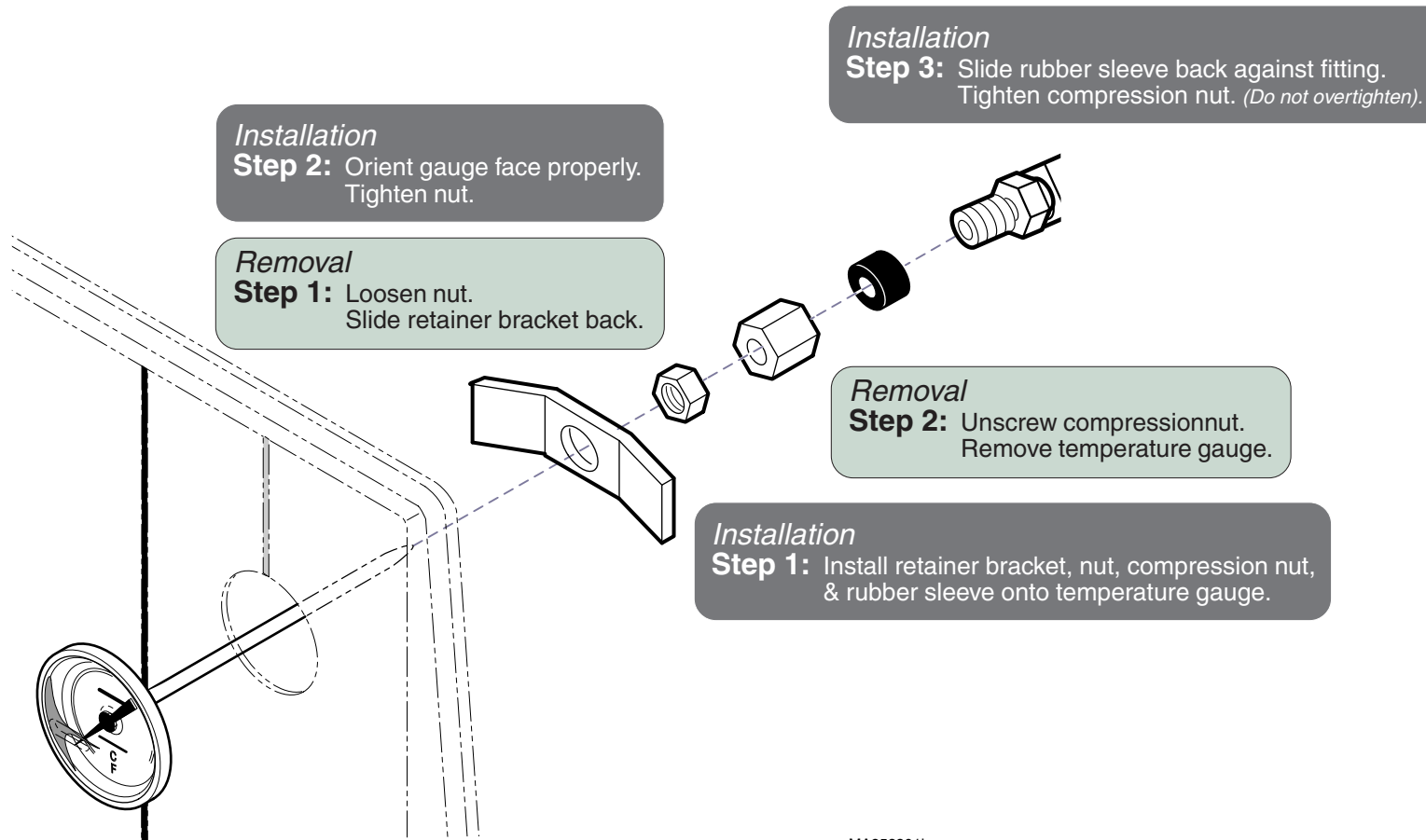
## Temperature Gauge

### Replacement

[Temperature Gauge](#)

[Page](#)

Exploded View / Part Numbers ..... E-5



MA252301i

**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Temperature Gauge

B-29

# Component Testing & Repair

## Door Assembly

### Door Replacement

#### Door Removal

**Step 1:** Move door handle to unlatched position.

#### Door Installation

**Step 1:** Install door stop & screw.

#### Door Removal

**Step 2:** Remove nut, screw, & door stop.

#### Door Installation

**Step 2:** Install nut\* (Do not overtighten)

\*apply removeable threadlocking adhesive

### Gasket Replacement

#### Gasket Installation

**Step 1:** Using a brush, clean all debris from gasket channel.

#### Gasket Installation

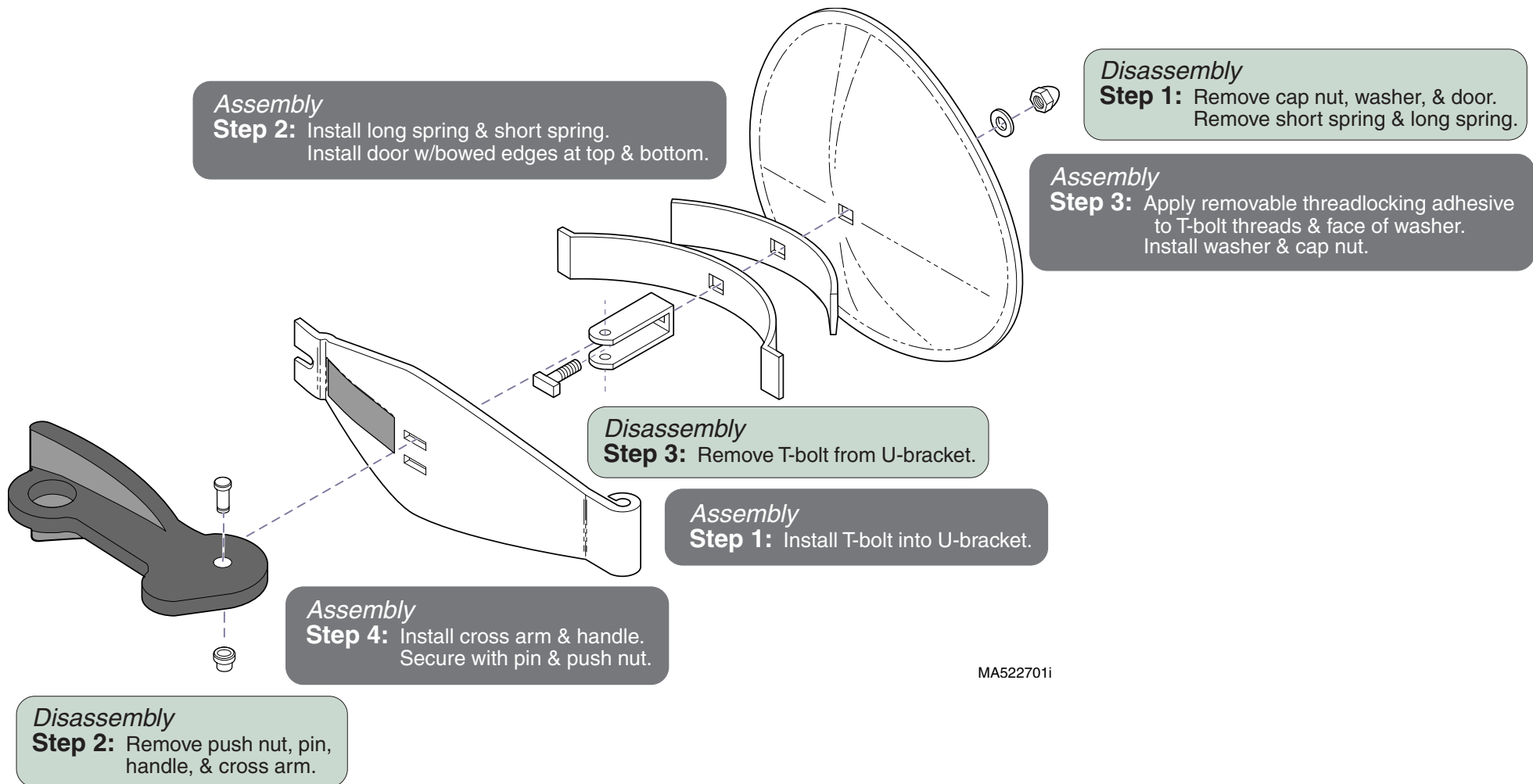
**Step 2:** Lubricate gasket w/soapy water. Insert gasket into gasket channel.

MA676200i

# Component Testing & Repair

## Door Assembly - continued

### Disassembly / Assembly



**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Door Assembly

B-31

# Component Testing & Repair

## Reservoir Tank

### Removal

Reservoir Tank	Page
Installation .....	B-33
Exploded View / Part Numbers .....	E-7

**Removal**  
**Step 1:** Drain all water from reservoir.

**Removal**  
**Step 2:** Loosen nut.

**Removal**  
**Step 7:** Pull bellows tube out of tank.

**Removal**  
**Step 5:** Loosen nut.

**Removal**  
**Step 4:** Remove clamp & drain hose.

**Removal**  
**Step 3:** Remove bulkhead fitting & washer.

**Removal**  
**Step 6:** Remove condensing coil, & washer.

**Removal**  
**Step 8:** Remove four screws & tank.

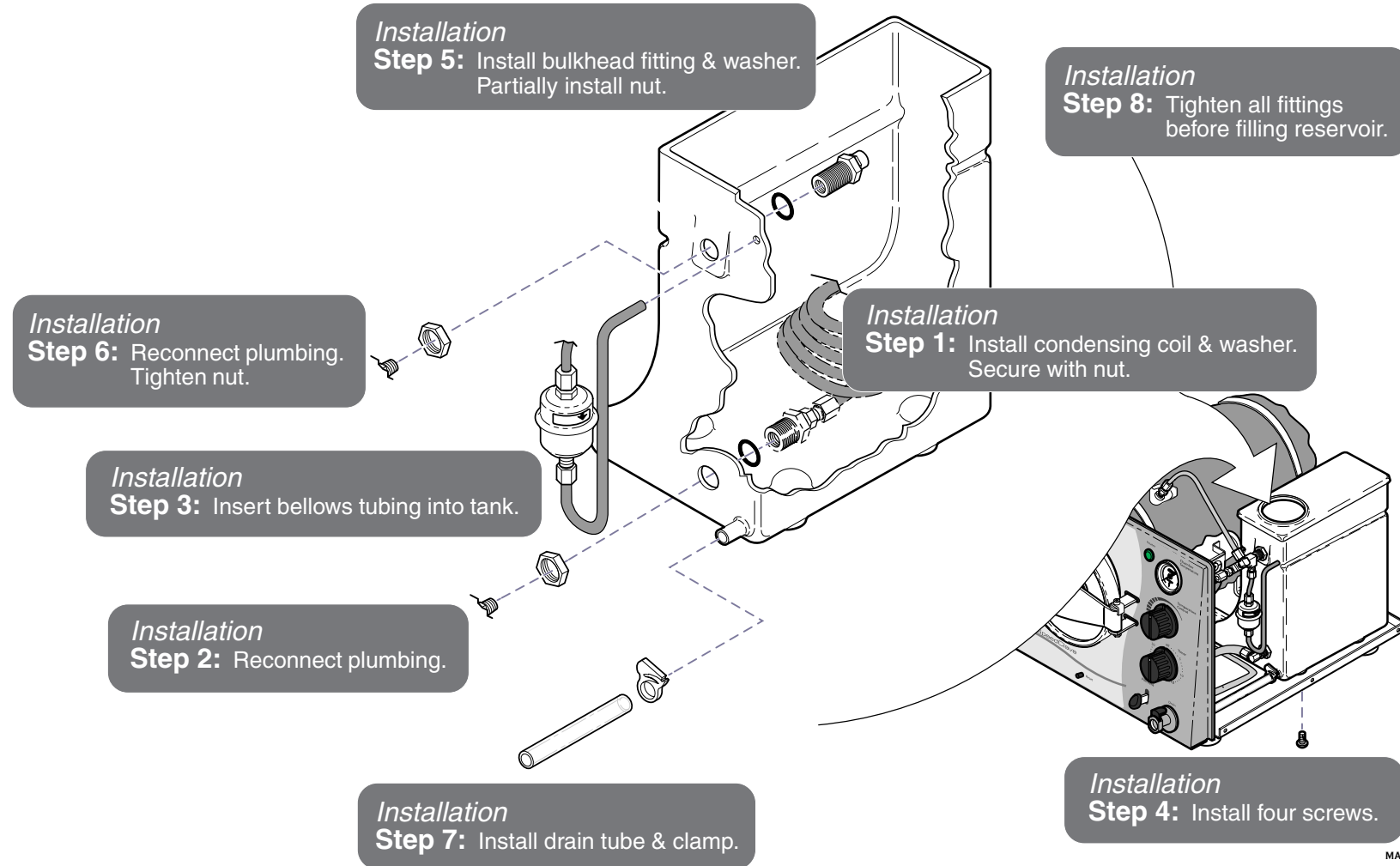


## Reservoir Tank

### Installation

#### Note

When reconnecting plumbing, apply teflon tape or sealant to threads - except where compression fittings are used.



**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Reservoir Tank

B-33

# Component Testing & Repair

## Chamber Assembly

### Removal

*Removal*

**Step 1:** Drain all water from reservoir.

*Removal*

**Step 2:** Remove the following components:

- Covers
- Tray Plate / Rack
- Door Assembly & Gasket
- Temperature Regulator Assy.
- Heating Element
- Overheat Thermostats

*Removal*

**Step 3:** Disconnect compression fitting from top of chamber.

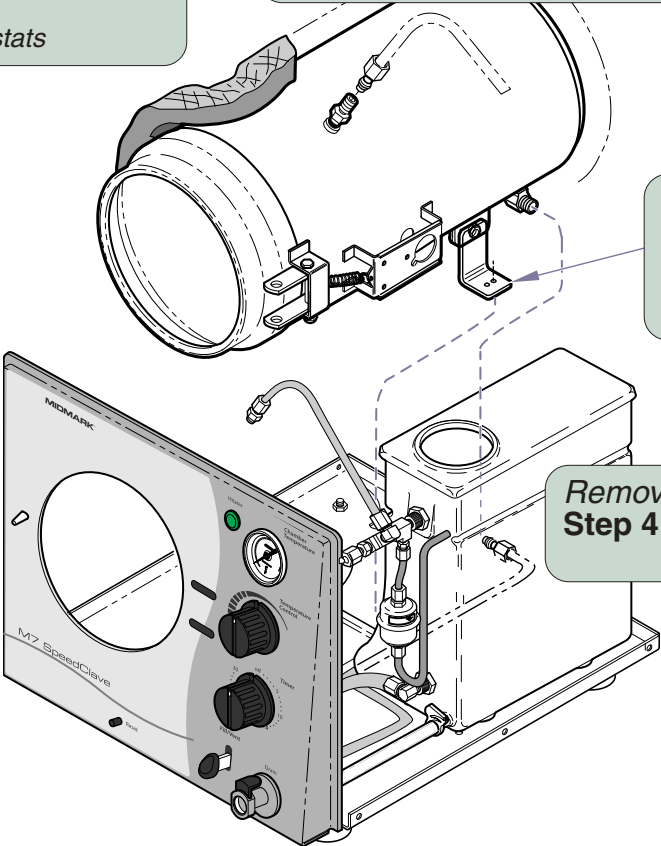
*Removal*

**Step 5:** Remove screw(s) securing bracket\* to base. Remove chamber.

*\* Bracket design may vary.*

*Removal*

**Step 4:** Disconnect compression fitting from bottom of chamber.



<u>Chamber Assembly</u>	<u>Page</u>
Disassembly / Assembly .....	B-35
Installation .....	B-36
Exploded View / Part Numbers .....	E-9

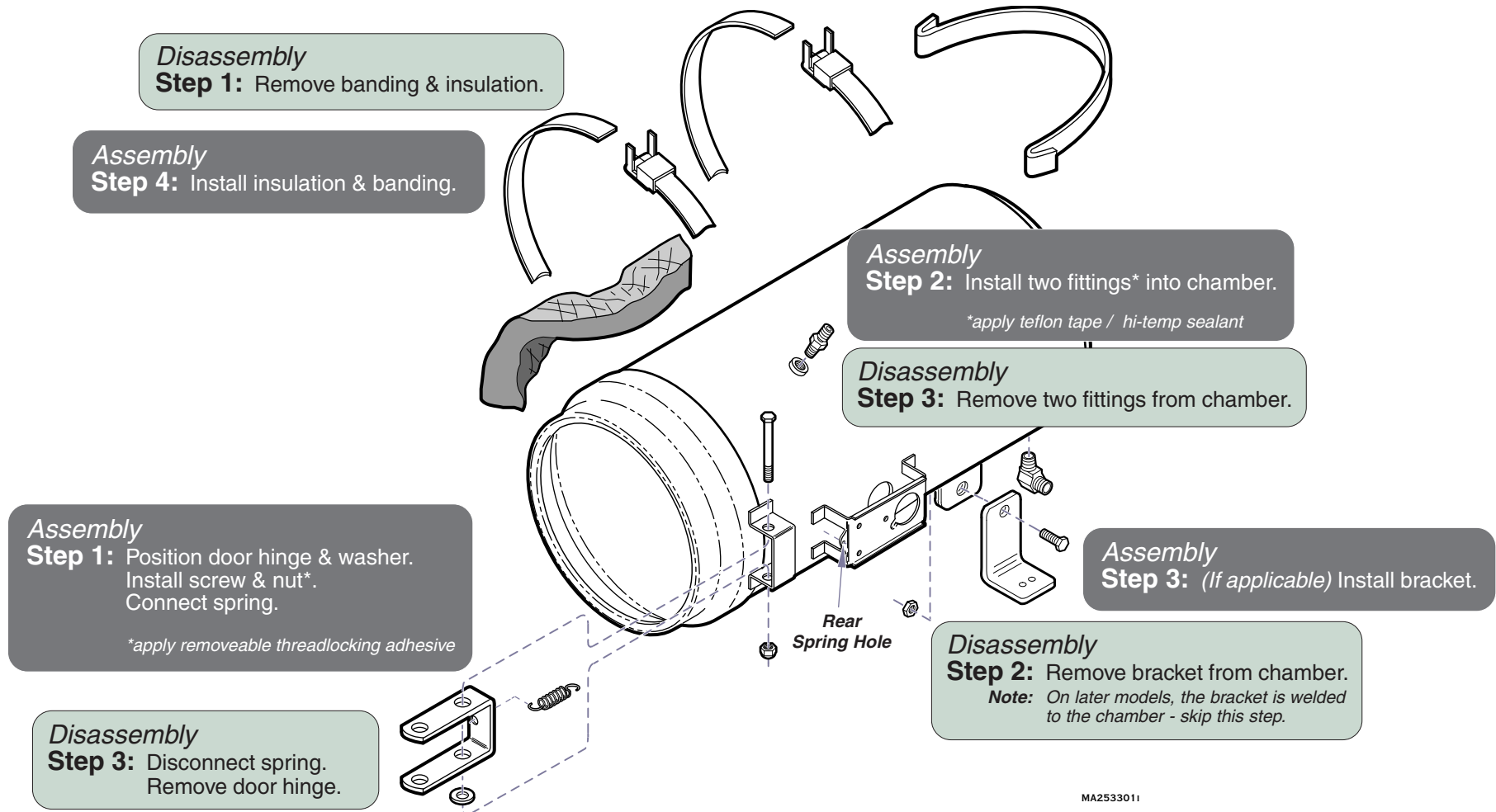
Refer to (Removing):

Covers .....	C-2
Tray Plate / Rack .....	C-3
Door Assembly / Gasket .....	B-30
Temperature Regulator Assembly .....	B-13
Heating Element .....	B-18
Overheat Thermostats .....	B-22

# Component Testing & Repair

## Chamber Assembly - continued

Disassembly / Assembly



**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Chamber Assembly

B-35

# Component Testing & Repair

## Chamber Assembly- continued

### Installation

**Refer to (Installing):**

Overheat Thermostats .....	B-22
Heating Element .....	B-18
Temperature Regulator Assembly .....	B-14
Door Assembly / Gasket .....	B-30
Tray Plate / Rack .....	C-3
Covers .....	C-2

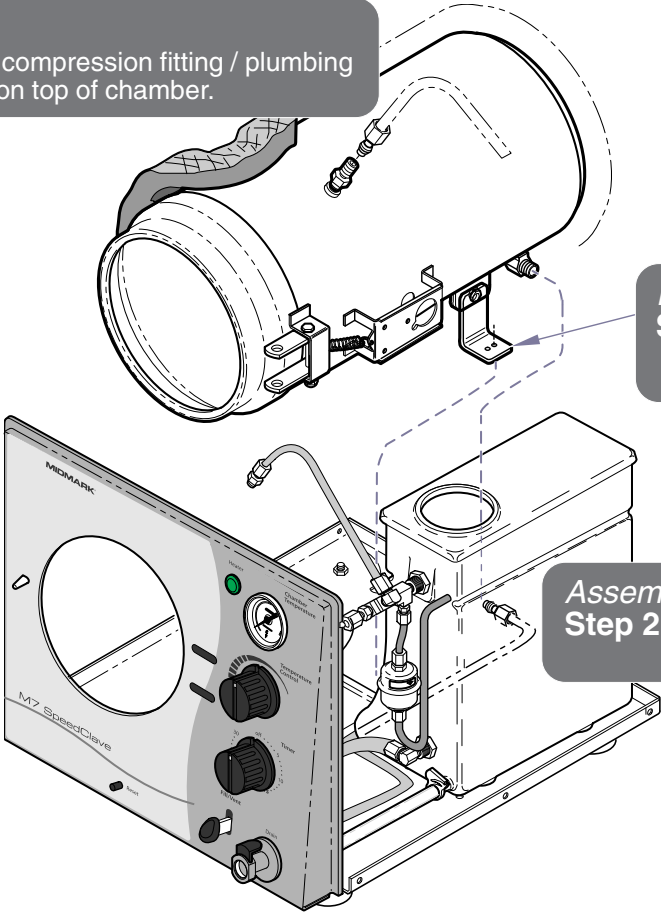
**Note**  
Replace compression fittings if damage is apparent.

**Assembly**  
**Step 3:** Connect compression fitting / plumbing to fitting on top of chamber.

**Assembly**  
**Step 4:** Install the following components:  
Overheat Thermostats  
Heating Element  
Temperature Regulator Assy.  
Door Assembly & Gasket  
Tray Plate / Rack  
Covers

**Installation**  
**Step 1:** Secure bracket\* to base.  
*\*Bracket design may vary.*

**Assembly**  
**Step 2:** Connect compression fitting / plumbing to fitting on bottom of chamber.

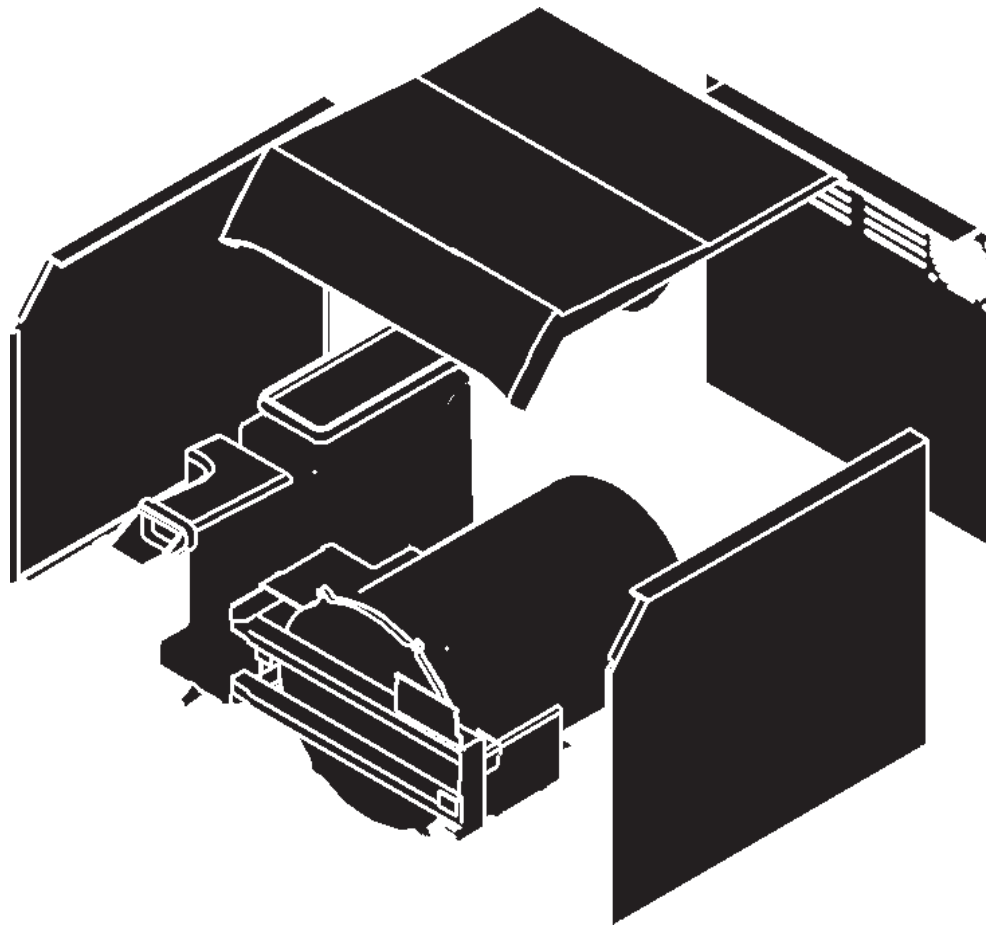


MA5231011

# Section C

## ***Access Procedures***

<u>Removing &amp; Installing:</u>	<u>Page</u>
Covers / Panels .....	C-2
Tray Plate / Rack .....	C-3
Draining / Filling the Reservoir .....	C-4



# Access Procedures

## Covers / Panels

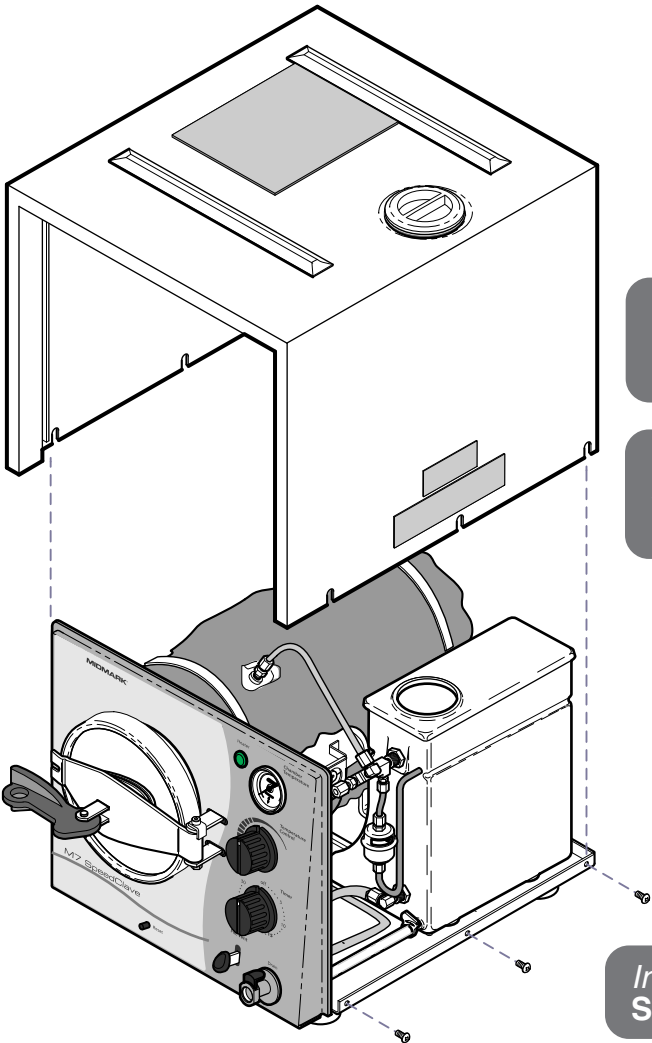
### Removal / Installation



**Caution**  
Always unplug power cord before removing any covers / panels.

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1

*Removal*  
**Step 2:** Remove cover.



*Installation: M7 (-011 thru -016)*  
**Step 1:** Slide cover down over edge of front panel.

*Installation: M7 (-020 thru -022)*  
**Step 1:** Slide cover down over edge of front panel & back panel (not shown).

*Removal*  
**Step 1:** Remove six screws.

*Installation: M7 (all)*  
**Step 2:** Install six screws.

MA5214011

## Tray Plate / Rack

### Removal / Installation



#### Caution

Always allow unit to cool before removing trays or rack.

#### Removal

**Step 1:** Lift up on left side of tray plate until it "pops" free of rack. Remove tray plate.

#### Installation

**Step 2:** Insert the right side of tray plate under bottom wire of rack.

#### Installation

**Step 3:** Push left side of plate down until it engages w/ offset ends of rack.

#### Removal

**Step 2:** Squeeze bottom of rack together. Pull rack out of chamber.

#### Installation

**Step 1:** Position rack w/ offset ends to the left. Squeeze bottom of rack together. Push rack into chamber.

Bottom Wire

Offset Ends  
(left)

Straight Ends  
(right)

MA539101

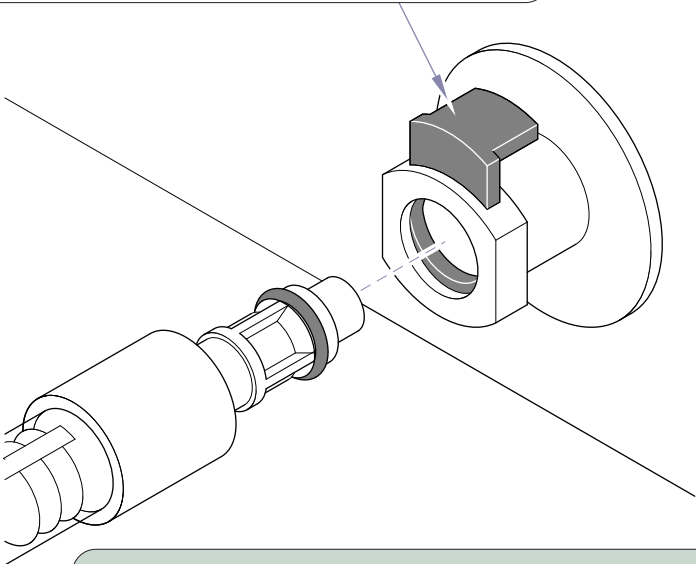
**Models:** M7 (-020 thru -022)  
**Serial Numbers:** all

Tray Plate / Rack

# Access Procedures

## Draining / Filling the Reservoir

**Note:** To remove drain hose, press release lever.



### Draining

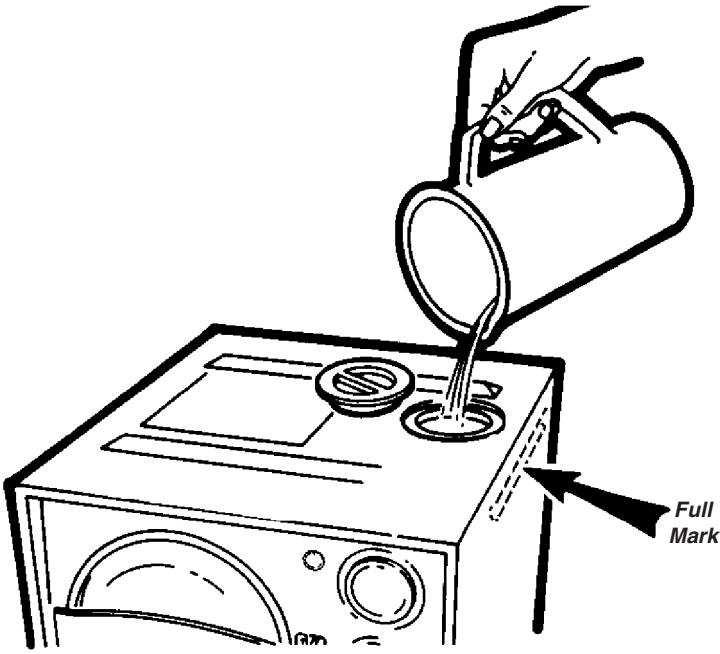
**Step 1:** Hold hose over a drain or suitable container.  
Insert drain hose into coupling on front of unit.

**Note:** The max. reservoir capacity is: 1.3 gallon (4.9 liters)

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1

### Filling

**Step 1:** Pour distilled water into reservoir until the water level reaches the "full mark".  
*Do not overfill!*



MA514002



# Section D

## Wiring Diagrams & Schematics

### Model

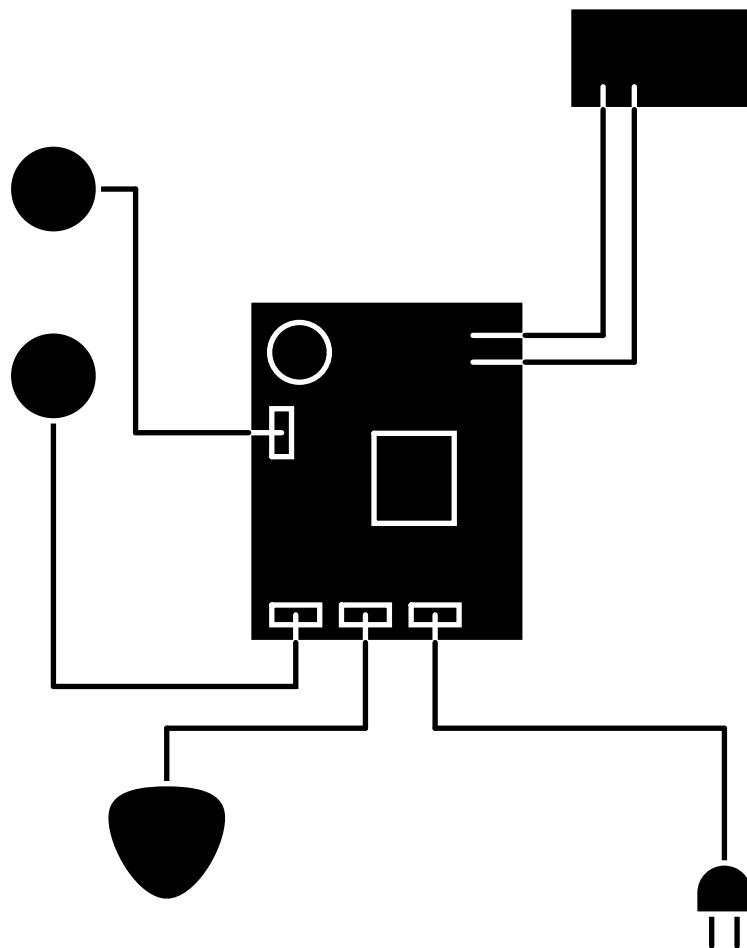
### Page

#### **115 VAC models:**

*M7 (-020 / -022)* ..... D-2

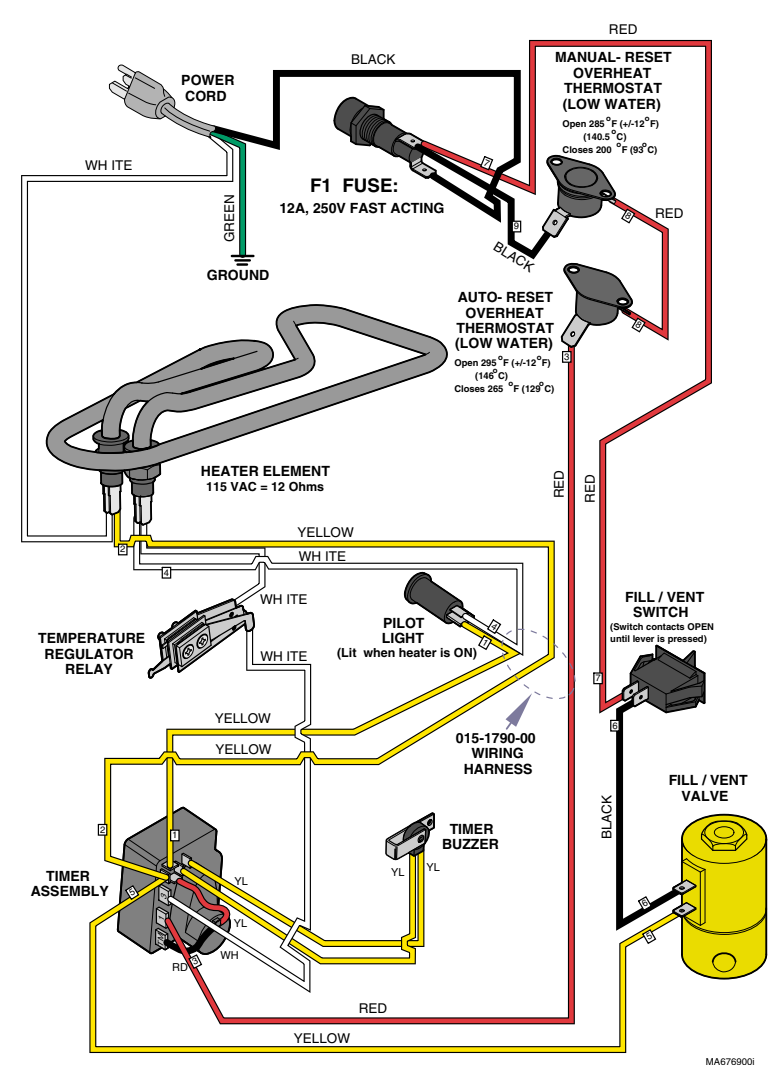
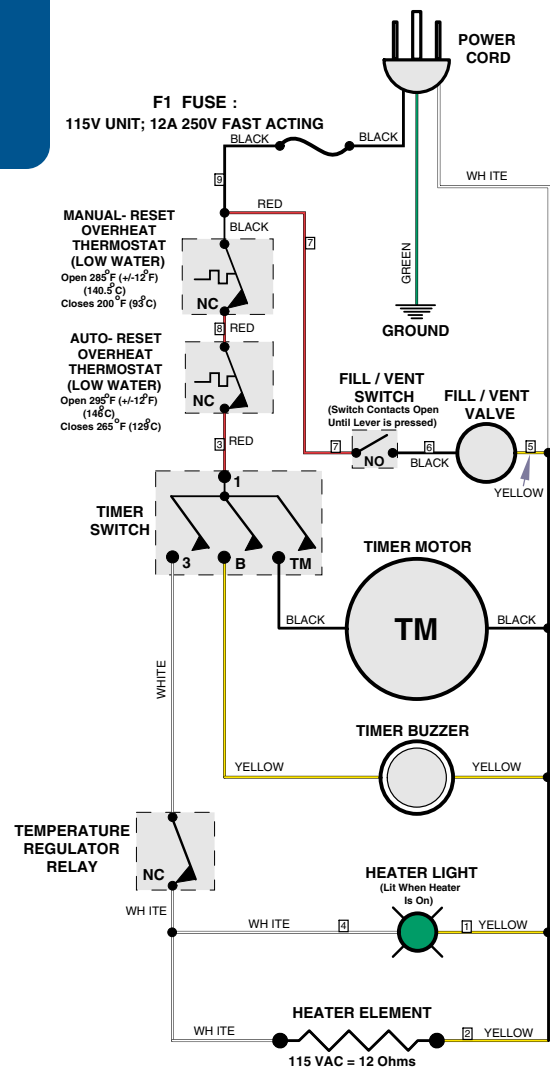
#### **230 VAC models:**

*M7 (-021)* ..... D-3



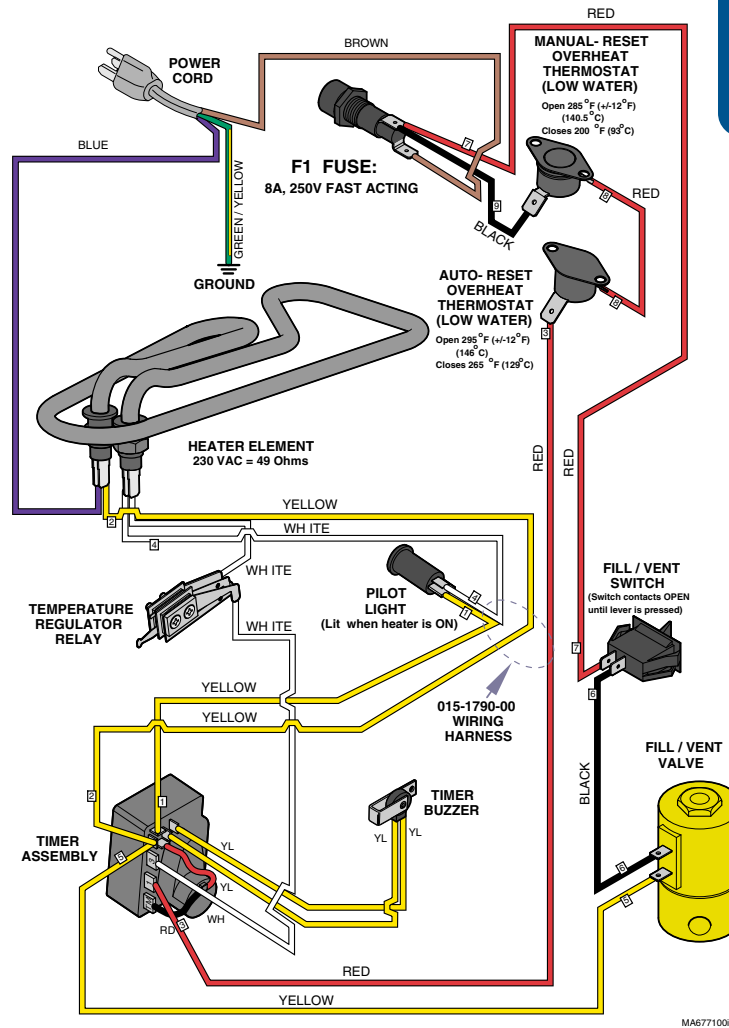
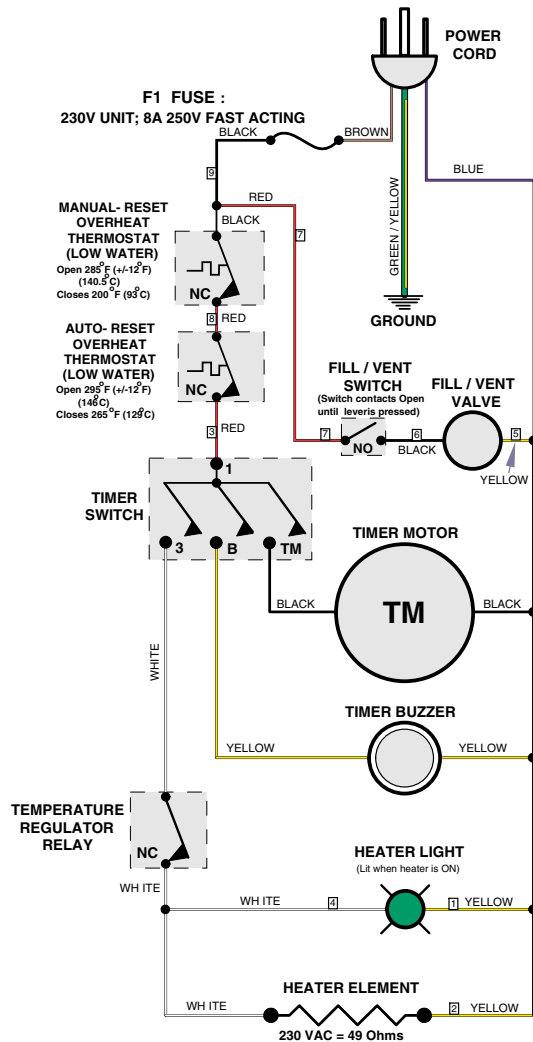
# Wiring Diagrams - 115VAC Models

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



# Wiring Diagrams - 230VAC Models

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers .....	E-1



**Models:**  
**Serial Numbers:**

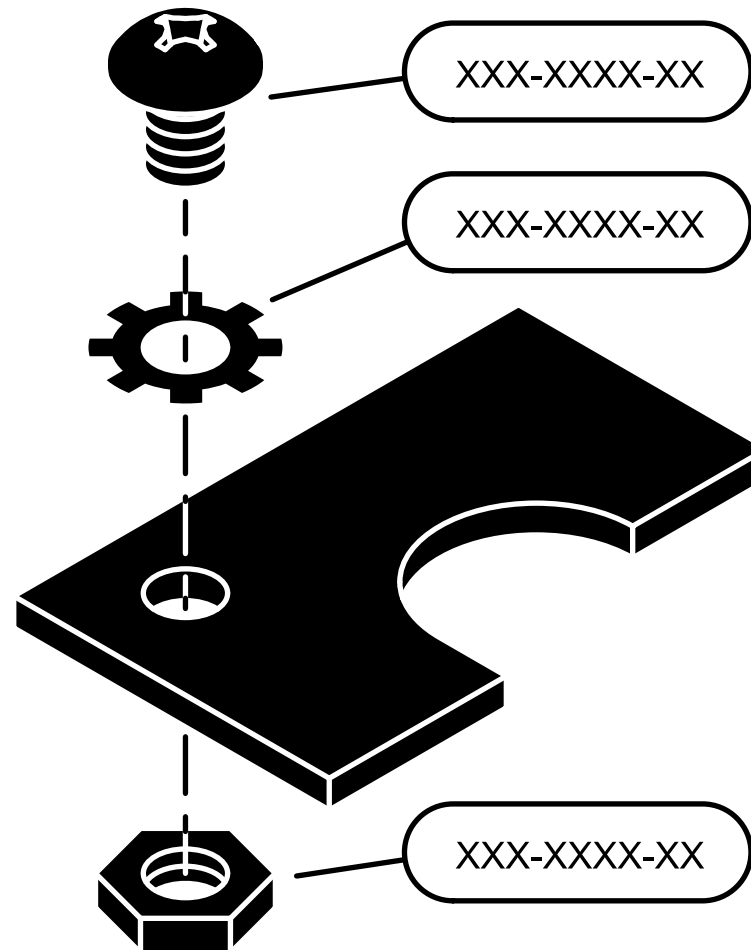
**M7 (-021)**  
**all**

**Wiring Diagrams**  
**(230 VAC Model)**

**D-3**



## ***Exploded Views & Parts Lists***



# M7 (-020 thru -022)

*Items not shown:*

Heating Element  
& Thermostats ..... E-12  
Power Cord ..... E-13  
Rack & Trays ..... E-14  
Packaging ..... E-15

**Covers** ..... E-3

*includes:  
main cover, base plate,  
leveling feet, fill cap, etc.*

**Chamber  
Components** ..... E-9

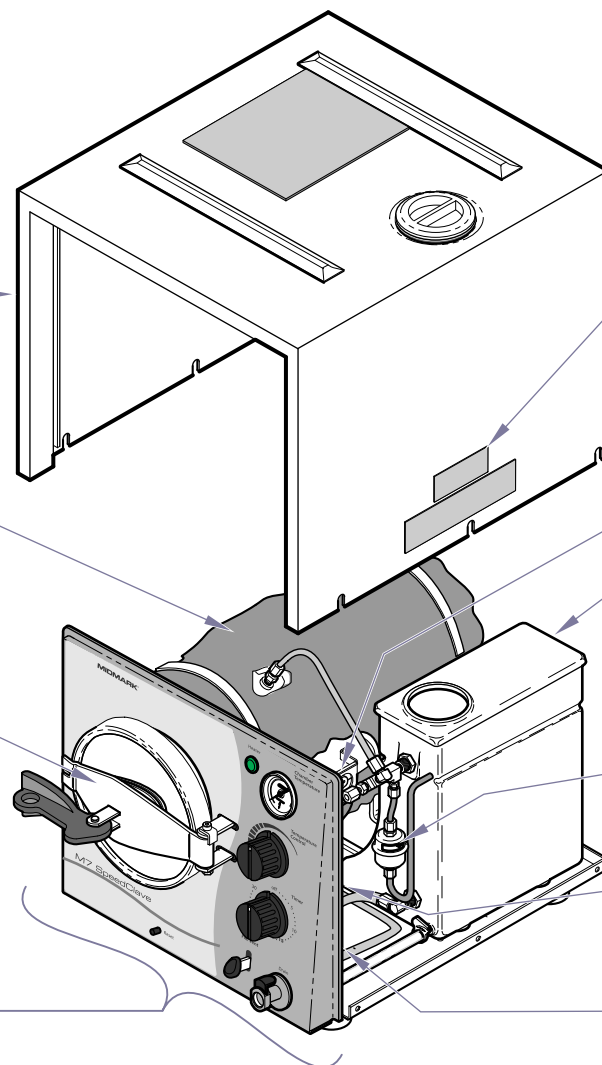
*includes:  
fittings & mounting bracket*

**Door Components** ..... E-5

*includes:  
hinge, & door gasket*

**Front Panel  
Components** ..... E-4

*includes:  
heater light, thermometer,  
knobs, & drain coupling*



**Labels & Decals** ..... E-16

**Temperature Regulator  
Components** ..... E-6

*includes:  
temp. relay & diaphragm cup*

**Reservoir** ..... E-7

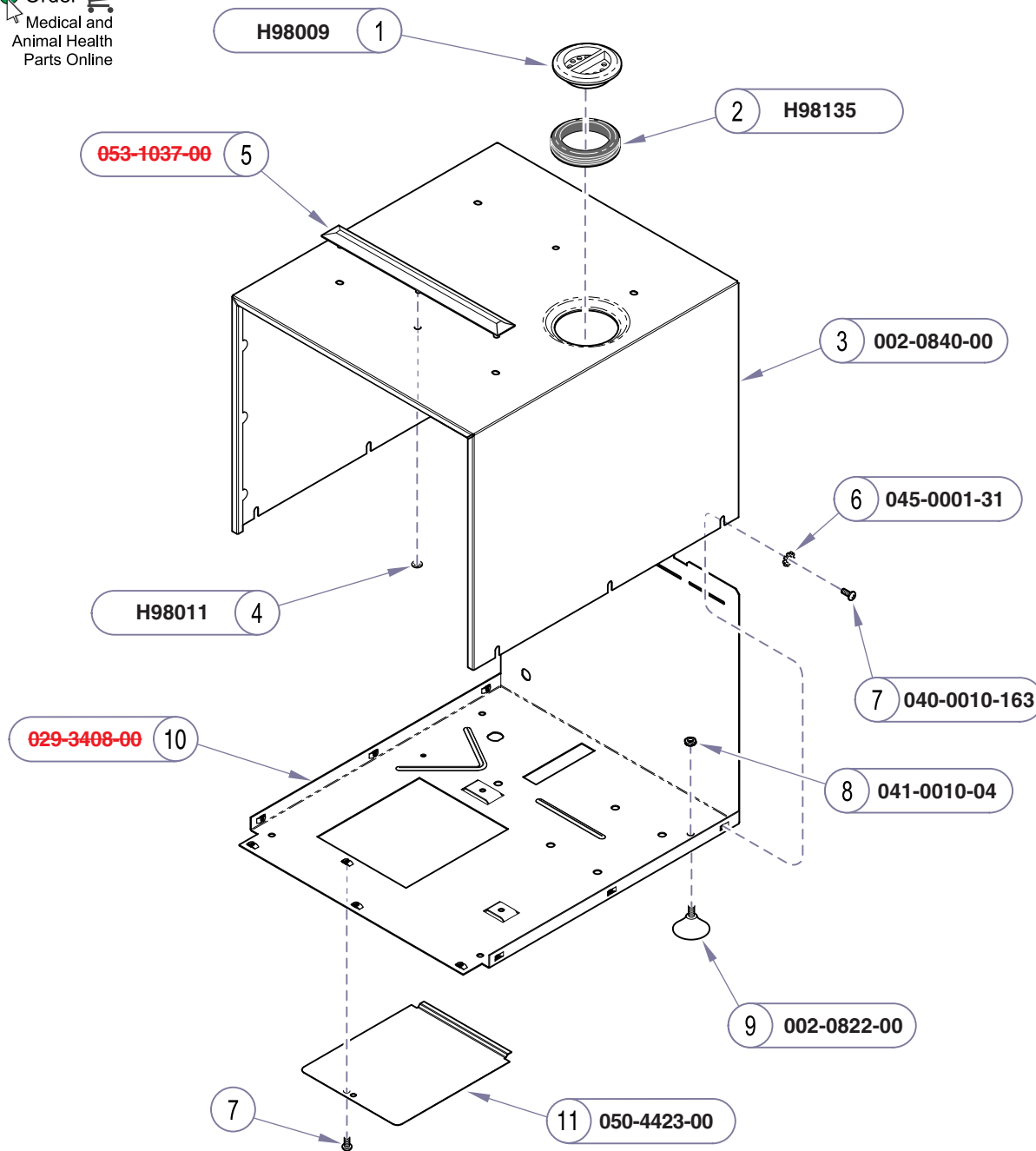
*includes:  
condensing coil & drain tube*

**Bellows & Plumbing** ... E-10

**Timer & Buzzer** ..... E-11

**Fill / Vent Valve  
& Plumbing** ..... E-8

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1



Item	Description	Qty.
1	Fill Cap .....	1
2	Rubber Seal .....	1
3	Main Cover w/ labels (includes items 4 & 5) .....	1
4	Push Nut .....	6
5	Cooling Rail .....	2
6	Lockwasher .....	1
7	Screw (#10 x 5/8", self-drilling/tapping) .....	7
8	Nut (used only on units built prior to serial number V411489) .....	4
9	Rubber Foot Kit (includes nut) .....	4
10	Base Assembly .....	1
11	Inspection Cover .....	1

Always Specify Model & Serial Number

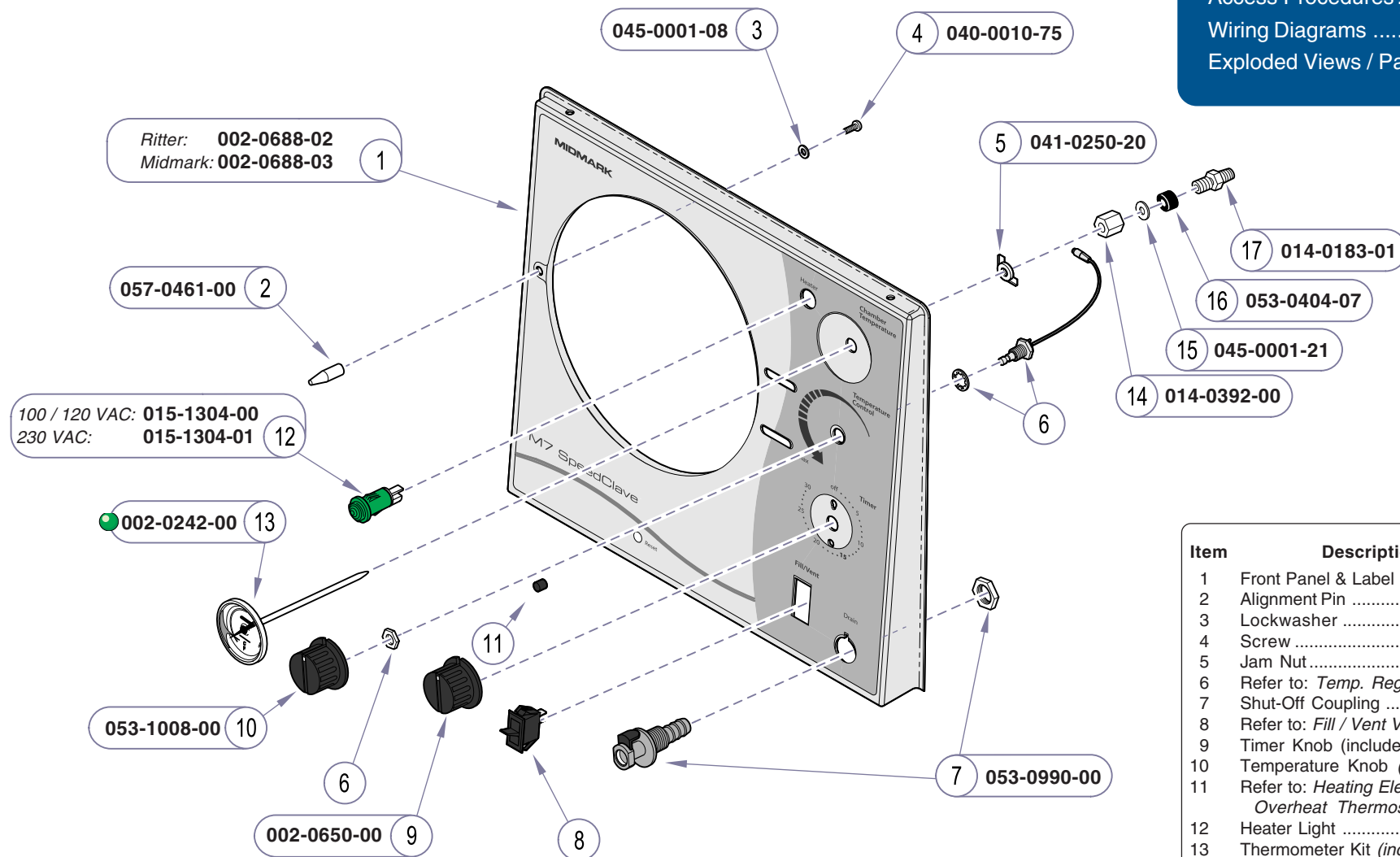
MA674101i

Models: | M7 (-020 thru -022) |  
Serial Numbers: | all |

Covers

E-3

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

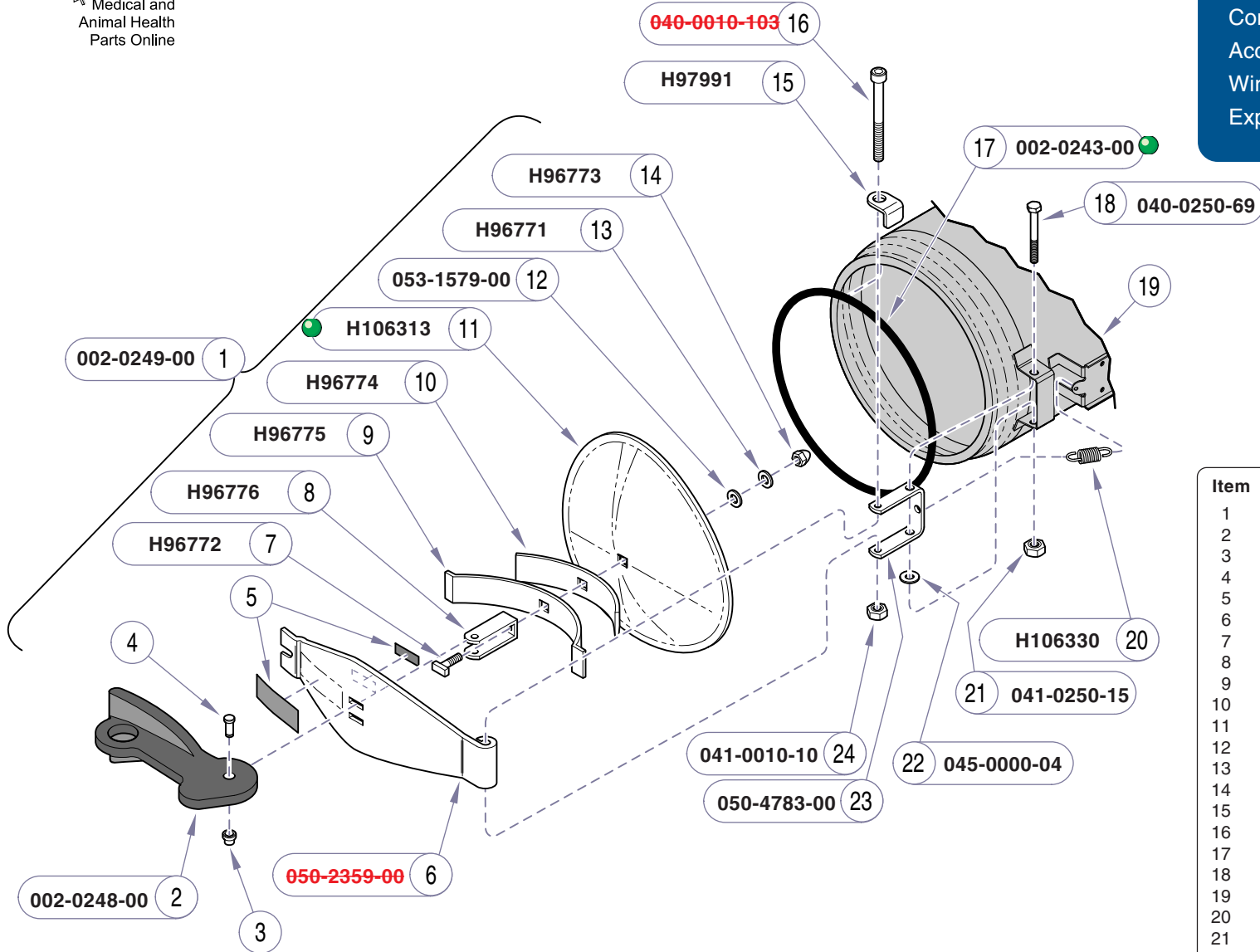


Item	Description	Qty.
1	Front Panel & Label .....	1
2	Alignment Pin .....	1
3	Lockwasher .....	1
4	Screw .....	1
5	Jam Nut .....	1
6	Refer to: <i>Temp. Regulator Components</i> .....	E-7
7	Shut-Off Coupling .....	1
8	Refer to: <i>Fill / Vent Valve</i> .....	E-9
9	Timer Knob (includes setscrew) .....	1
10	Temperature Knob (includes setscrew) .....	1
11	Refer to: <i>Heating Element / Overheat Thermostats</i> .....	E-13
12	Heater Light .....	1
13	Thermometer Kit (incl. items 15 thru 18) ....	1
14	• Compression Nut .....	1
15	• Washer .....	1
16	• Rubber Sleeve .....	1
17	• Male Connector .....	1

Always Specify Model & Serial Number

MA671908i





Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Door Assembly (incl. items 2 thru 13) .....	1
2	• Handle (includes items 3 & 4) .....	1
3	• • Push Nut .....	1
4	• • Pin .....	1
5	• Refer to Label Location .....	Ref
6	• Cross Arm .....	1
7	• T-bolt .....	1
8	• U-bracket .....	1
9	• Long Spring .....	1
10	• Short Spring .....	1
11	• Door .....	1
12	• Gasket .....	1
13	• Washer .....	1
14	• Cap Nut (apply adhesive #042-0024-02) .....	1
15	Door Stop .....	1
16	Bolt .....	1
17	Door Gasket .....	1
18	Bolt .....	1
19	Refer to Chamber Components .....	Ref
20	Spring .....	1
21	Torque Nut .....	1
22	Washer .....	1
23	Hinge .....	1
24	Torque Nut .....	1

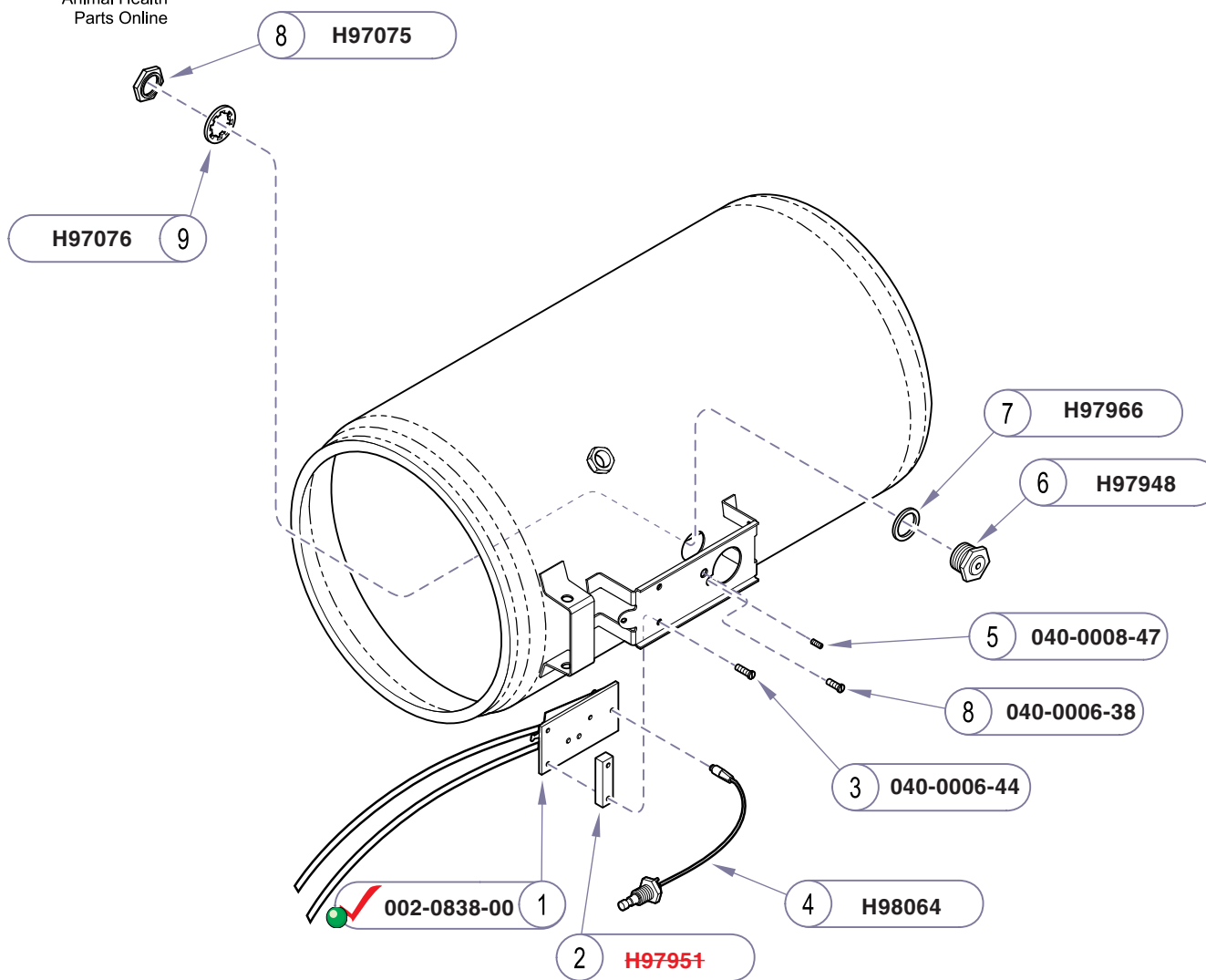
Always Specify Model & Serial Number

MA511703i

Models: M7 (-020 thru -022)  
Serial Numbers: all

Door Components

E-5

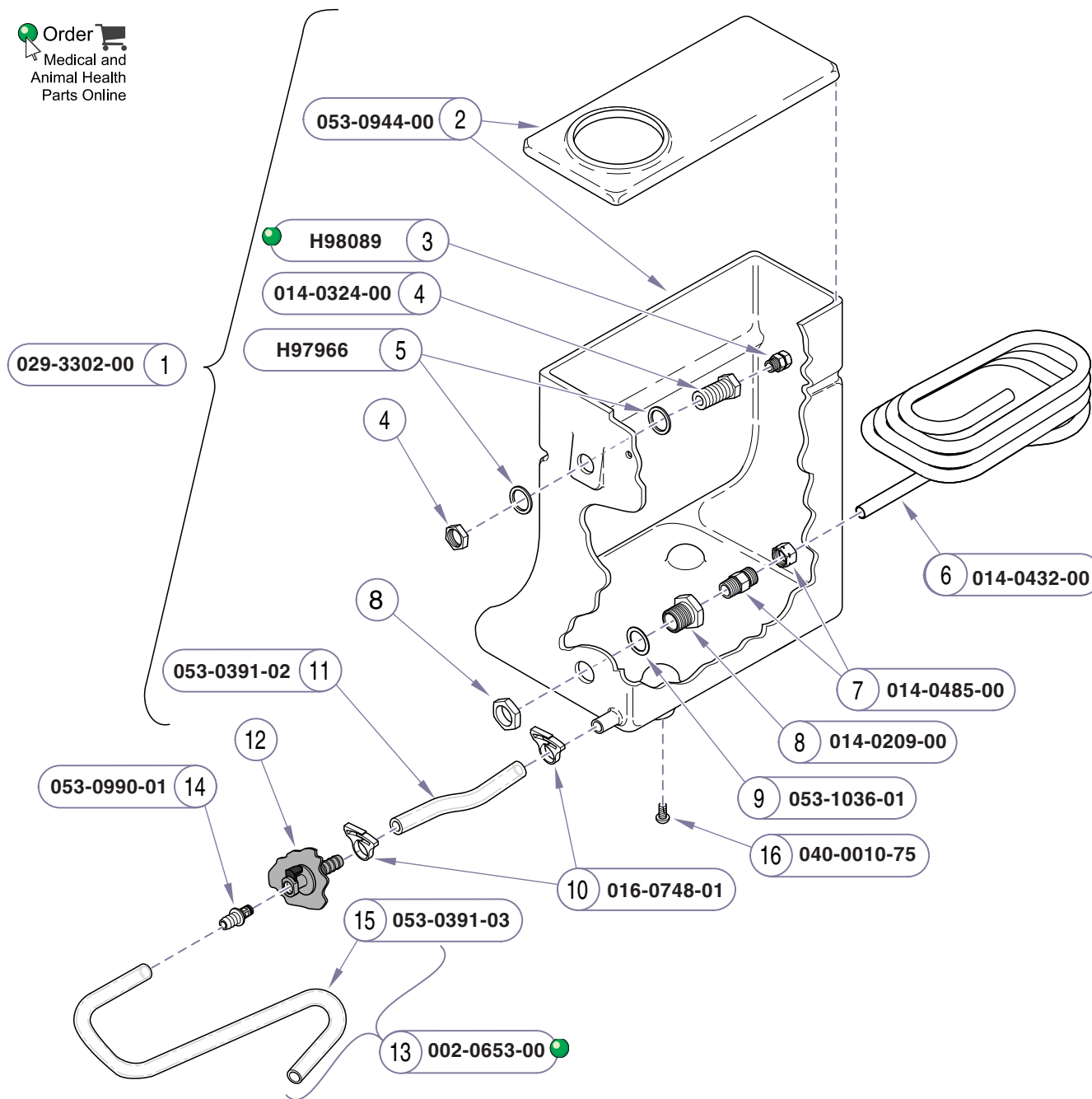


Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Temperature Relay Kit (incl. items 2 & 3) .....	1
2	• Spacer .....	1
3	• Screw (#6-32 x 7/16") .....	3
4	Flexible Shaft Assembly .....	1
5	Set Screw .....	1
6	Diaphragm Cup .....	1
7	Gasket .....	1
8	Nut .....	1
9	Lockwasher .....	1

Always Specify Model & Serial Number

MA511902i



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Reservoir Assembly (incl. i2 thru 11) .....	1
2	• Tank with Lid (not available separately) ..	1
3	• Pressure Relief Valve .....	1
4	• Bulkhead Fitting (includes nut) .....	1
5	• Washer .....	2
6	• Condensing Coil .....	1
7	• Compression Fitting .....	1
8	• Bulkhead Fitting (includes nut) .....	1
9	• Neoprene Washer .....	1
10	• Hose Clamp .....	2
11	• Tank Drain Tube .....	1
12	Refer to: Front Panel Components .....	Ref
13	Drain Hose Kit (incl. items 13 thru 15) .....	1
14	• Barbed Fitting .....	1
15	• Removeable Drain Tube .....	1
16	Screw .....	2

Always Specify Model & Serial Number

MA675106i

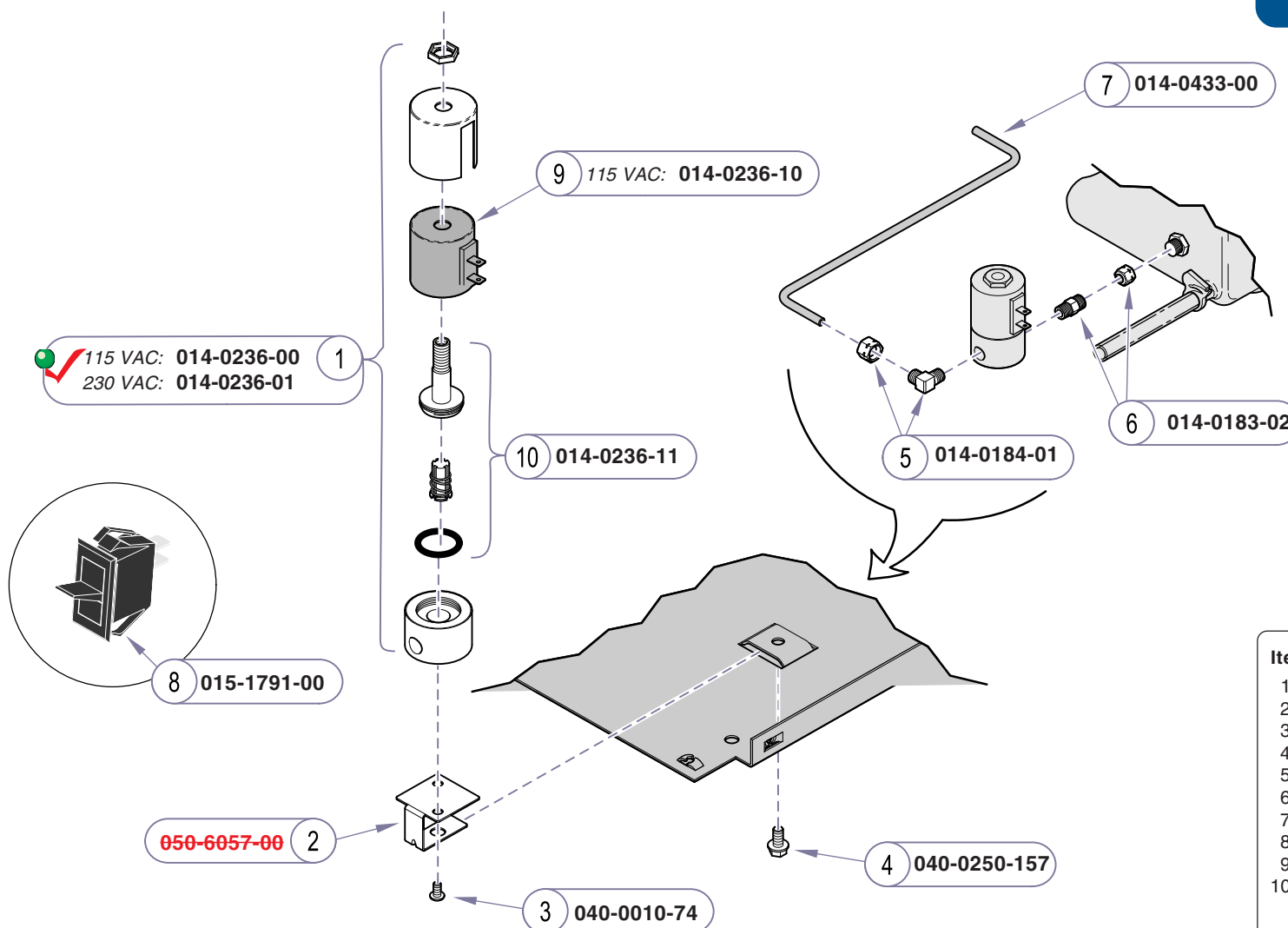
Models: M7 (-020 thru -022)  
Serial Numbers: all

Reservoir

E-7

**Refer To:** **Page**

Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1



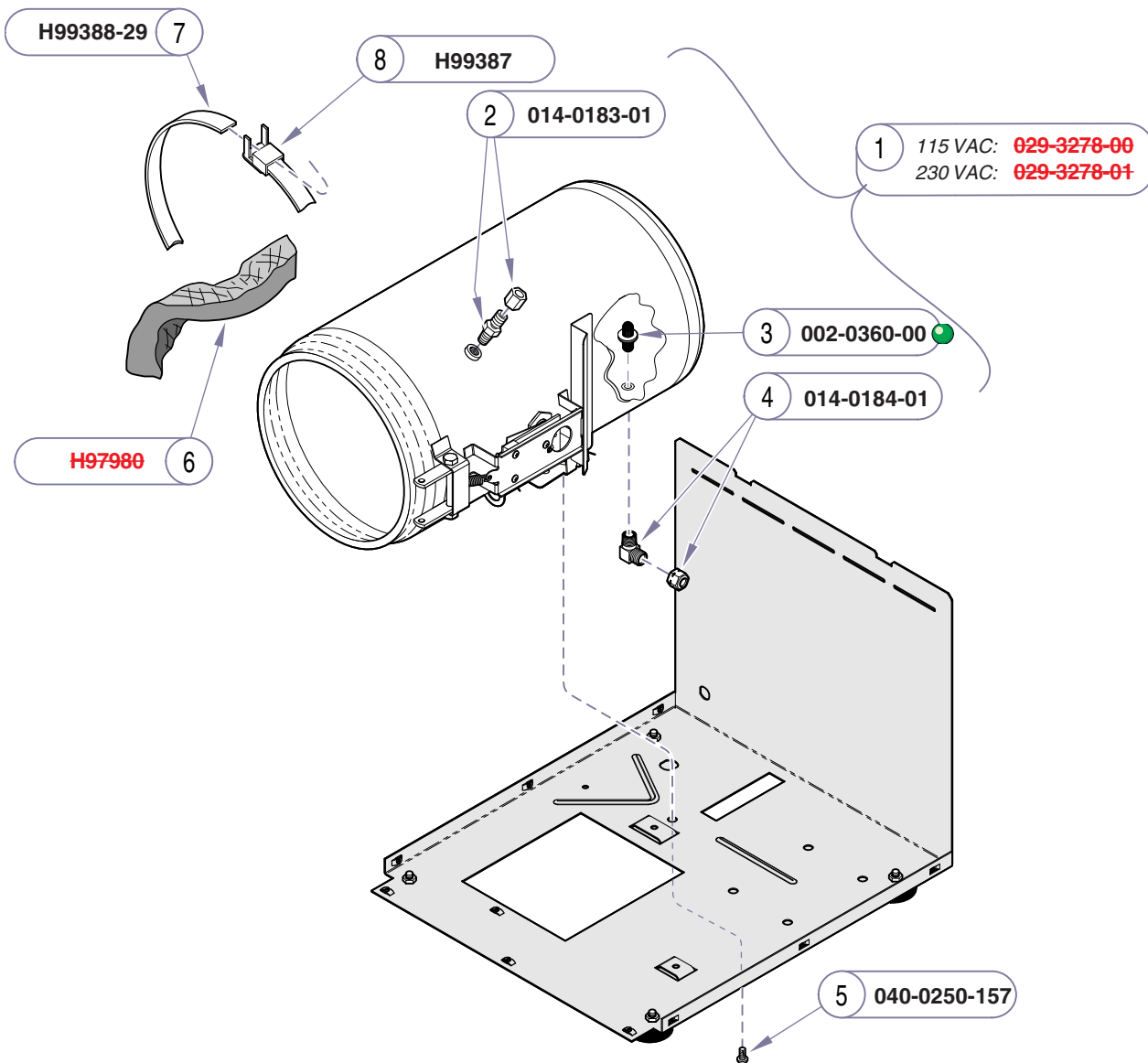
Item	Description	Qty.
1	Fill/Vent Valve .....	1
2	Mounting Bracket.....	1
3	Screw (#10-32 x 3/8") .....	2
4	Bolt (1/4-20 x 1/2") .....	2
5	Elbow Fitting .....	1
6	Male Fitting (3/8").....	1
7	Tubing (NLA) .....	1
8	Fill / Vent Switch .....	1
9	Replacement Coil .....	1
10	Replacement Kit (Includes plunger, guide, and seals) .....	1

**Always Specify Model & Serial Number**

MA674605i

**Fill / Vent Valve  
& Plumbing**

**Models:** | **M7 (-020 thru -022)** |  
**Serial Numbers:** | **all** |



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Chamber Assembly - <b>complete</b> <i>includes items 2 thru 4 &amp; the following:</i> .....	1
	• Heating Element & Thermostats (2)	
	• Temperature Regulator Assembly	
	• Door Hinge & Door Gasket	
	• Timer Buzzer	
2	• Compression Fitting .....	1
3	• Filter Screen .....	1
4	• Elbow Fitting .....	1
5	Screw .....	1
6	Insulation .....	1
7	Banding Strap .....	2
8	Banding Clip .....	2

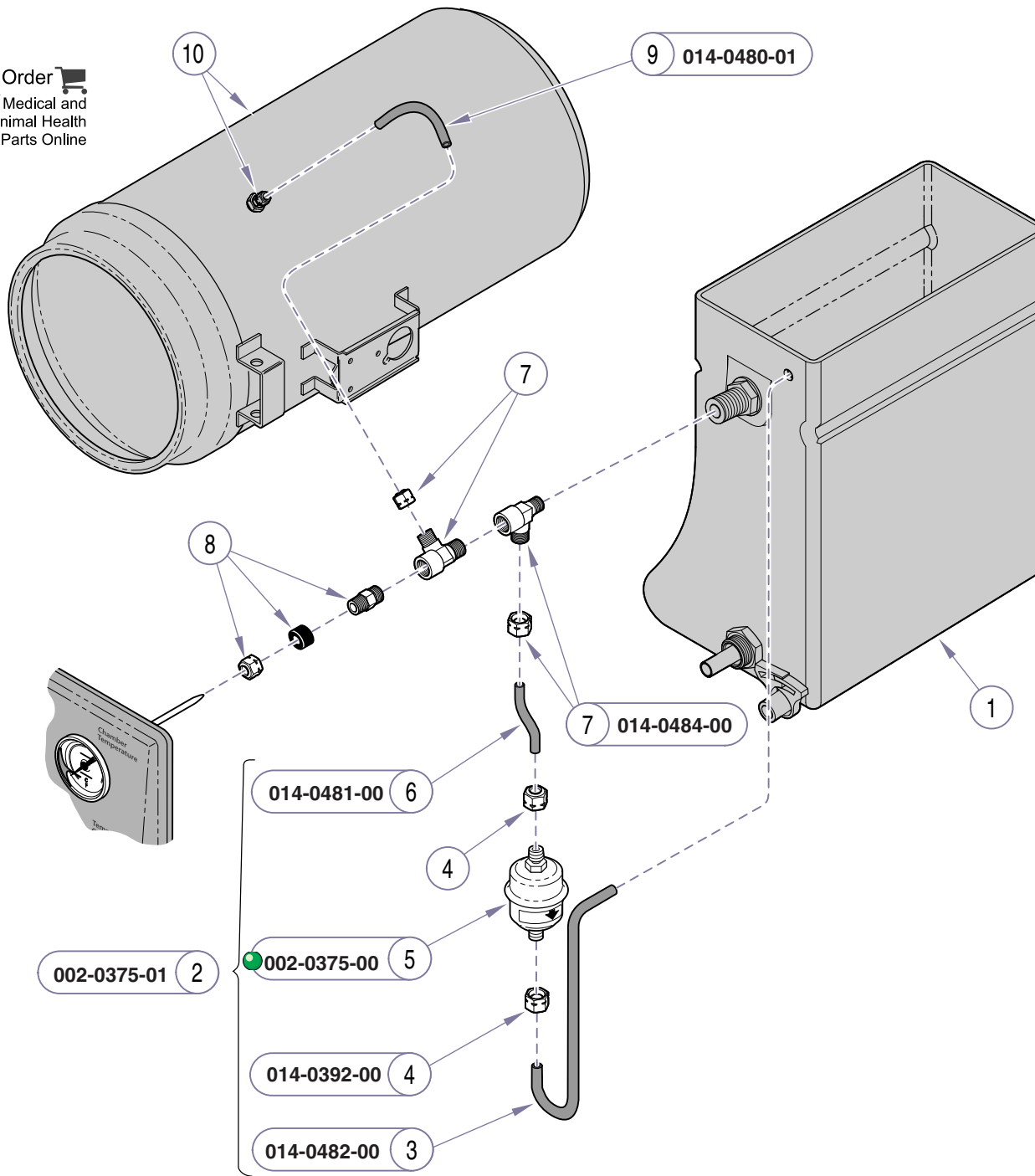
Always Specify Model & Serial Number

MA676601i

Models: **M7 (-020 thru -022)**  
Serial Numbers: **all**

Chamber Components

E-9



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Refer to: <i>Reservoir</i> .....	Ref
2	Bellows Kit .....	1
3	• Tube .....	1
4	• Compression Nut .....	2
5	• Bellows .....	1
6	• Tube .....	1
7	• Compression Fitting .....	2
8	Refer to: <i>Front Panel Components</i> .....	Ref
9	Tube .....	1
10	Refer to: <i>Chamber Components</i> .....	Ref

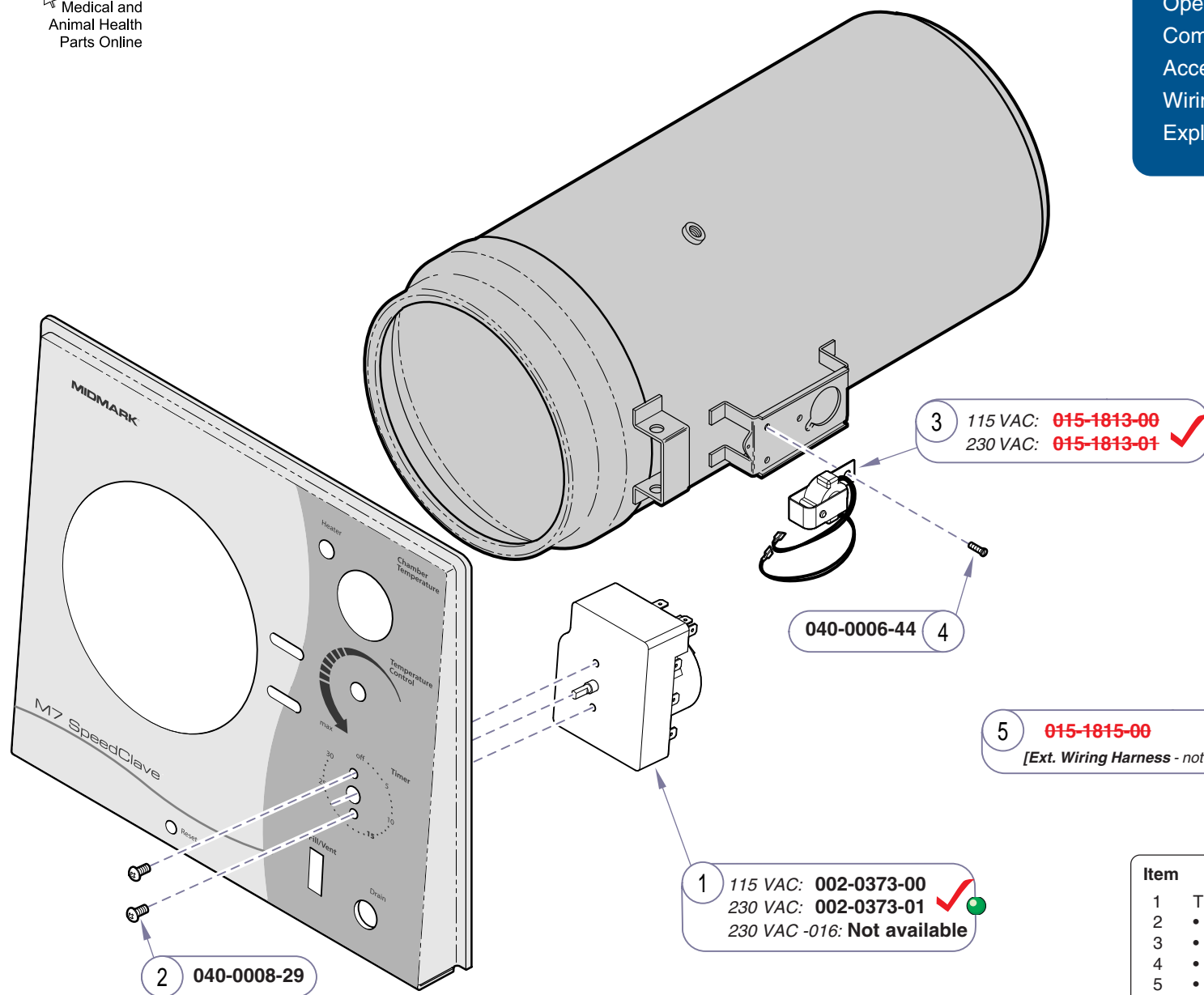
Always Specify Model & Serial Number

MA675602i

## Bellows & Plumbing

Models: **M7 (-020 thru -022)**  
Serial Numbers: **all**

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1



Item	Description	Qty.
1	Timer Assembly Kit (incl. items 2 thru 5) .....	1
2	• Screw (#8-32 x 5/16") .....	1
3	• Buzzer .....	1
4	• Screw (#6-32 x 7/16") .....	1
5	• Extended Wiring Harness - not shown (required for older units only) .....	1

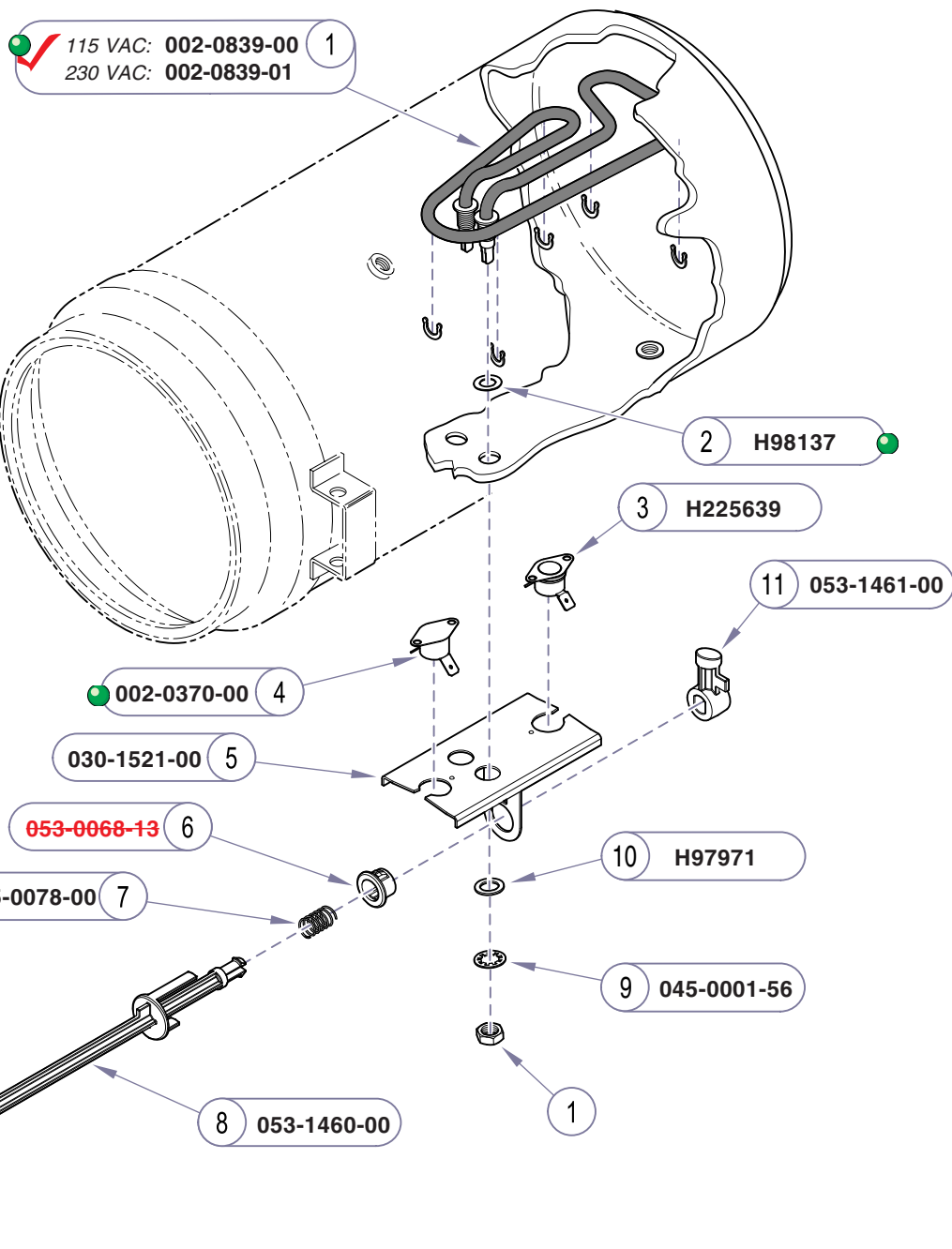
Always Specify Model & Serial Number

MA671802i

Models: M7 (-020 thru -022)  
Serial Numbers: all

Timer / Buzzer

E-11



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Heating Element Kit (includes nuts, e-clips & item 2) .....	1
2	• Gasket .....	2
3	Overheat Thermostat (manual-reset) .....	1
4	Overheat Thermostat (auto-reset) .....	1
5	Bracket .....	1
6	Bushing .....	1
7	Spring .....	1
8	Reset Rod .....	1
9	Lockwasher .....	2
10	Washer .....	2
11	Reset Button Actuator .....	1

Always Specify Model & Serial Number

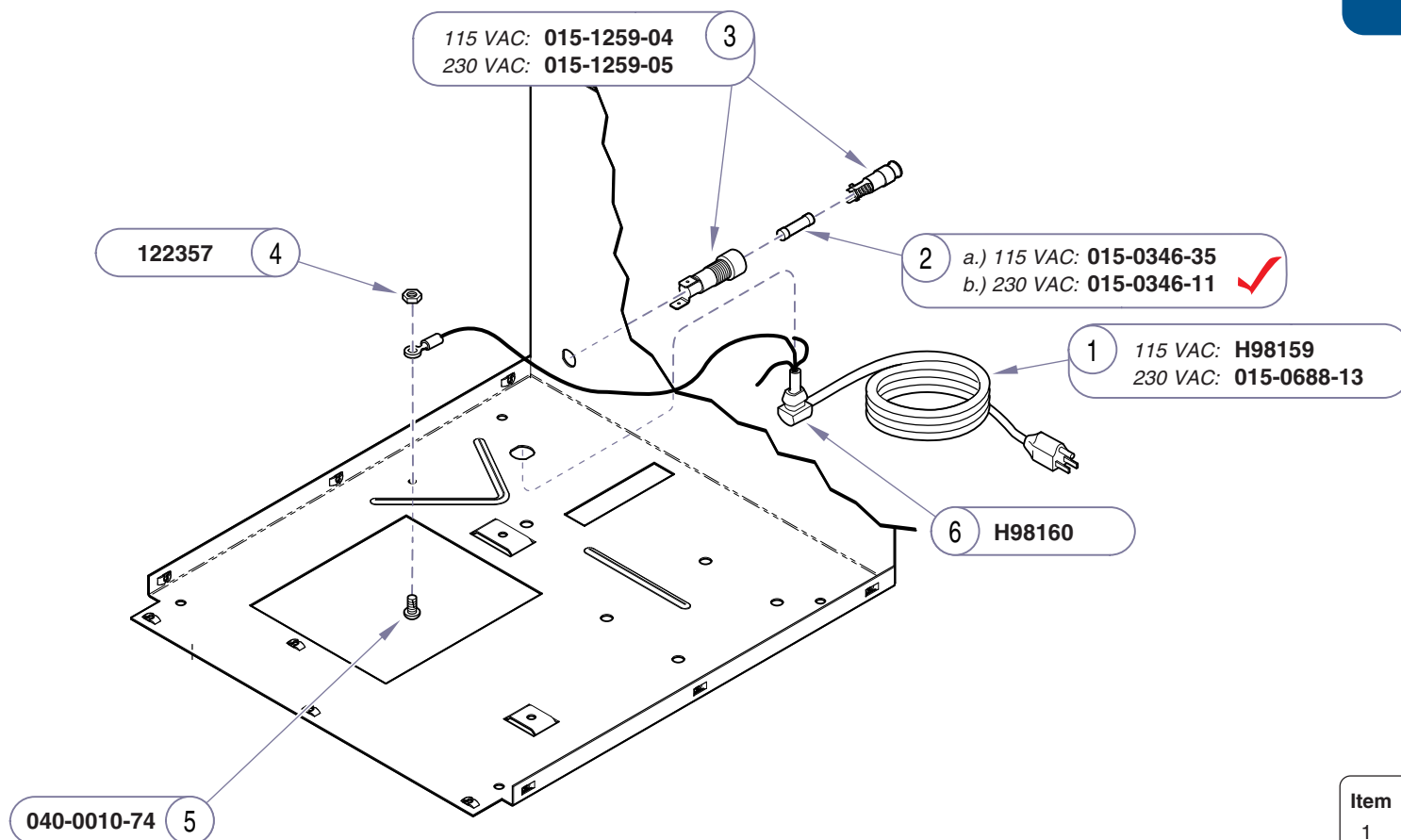
MA673903i

## Heating Element & Thermostats

Models: M7 (-020 thru -022)  
Serial Numbers: all



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1



Item	Description	Qty.
1	Power Cord .....	1
2	Fuse:	
	a) 12A, 250V, Fast-Acting, 1/4" x 1-1/4" ...	1
	b) 8A, 250V, Fast-Acting, 5mm x 20mm ..	1
3	Fuse Holder .....	1
4	Screw (#10-32 x 3/8") .....	1
5	Keps Nut .....	1
6	Strain Relief .....	1

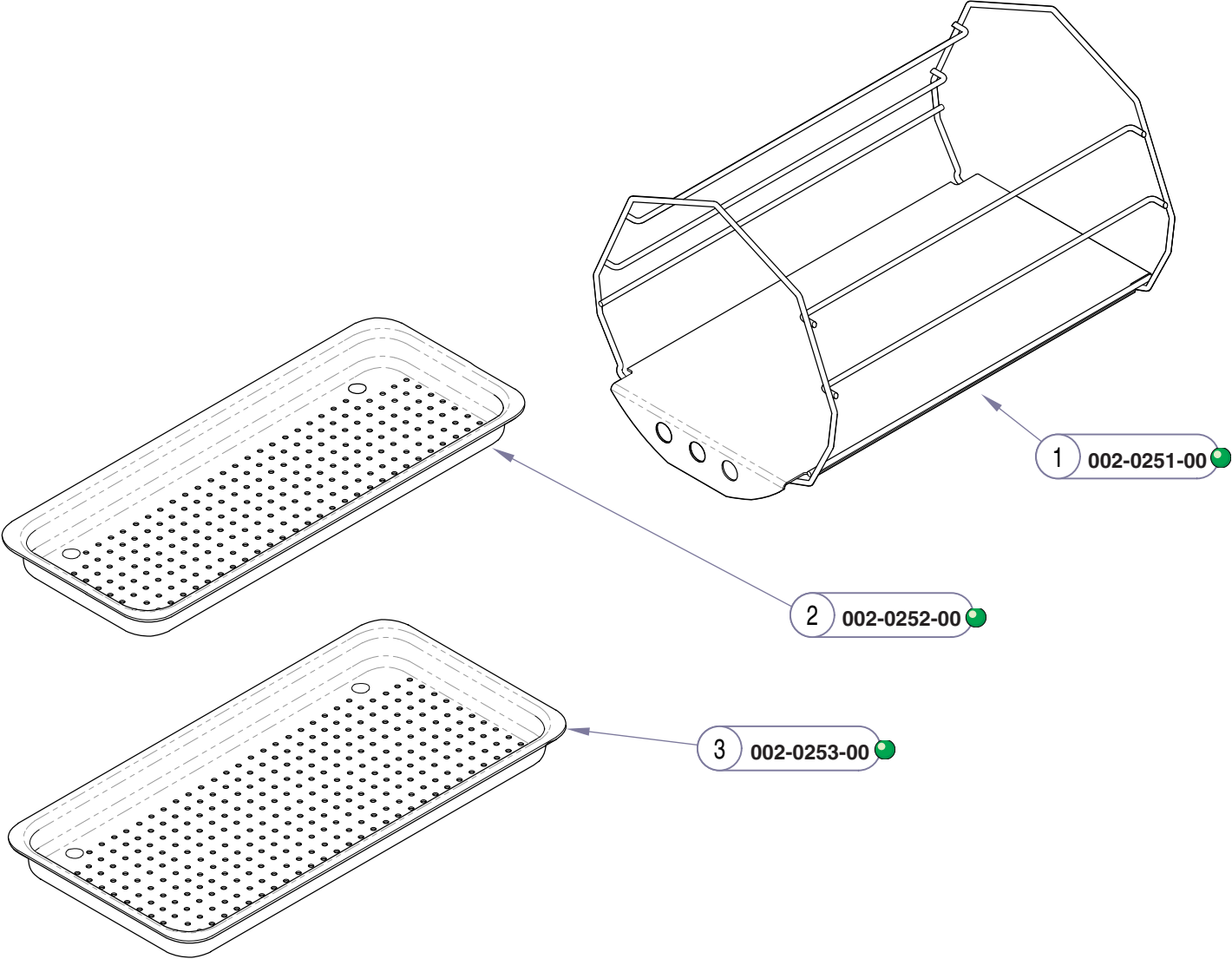
Always Specify Model & Serial Number

MA677201i

Models: **M7 (-020 thru -022)**  
Serial Numbers: **all**

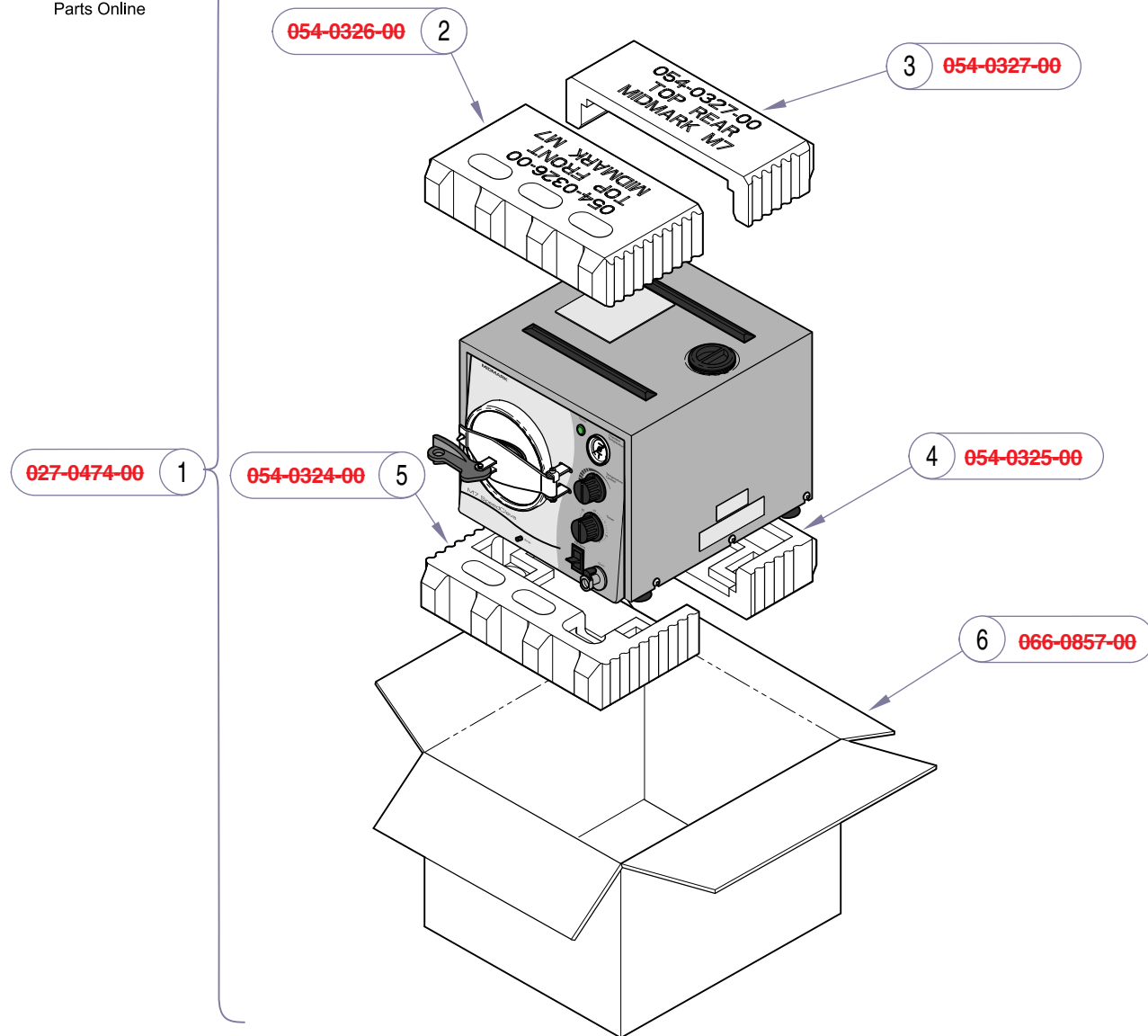
Power Cord / Fuse

Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
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Item	Description	Qty.
1	Tray Rack .....	1
2	4 inch Tray .....	1
3	5 inch Tray .....	2
Always Specify Model & Serial Number		

SA102200i



**Refer To:** **Page**

Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
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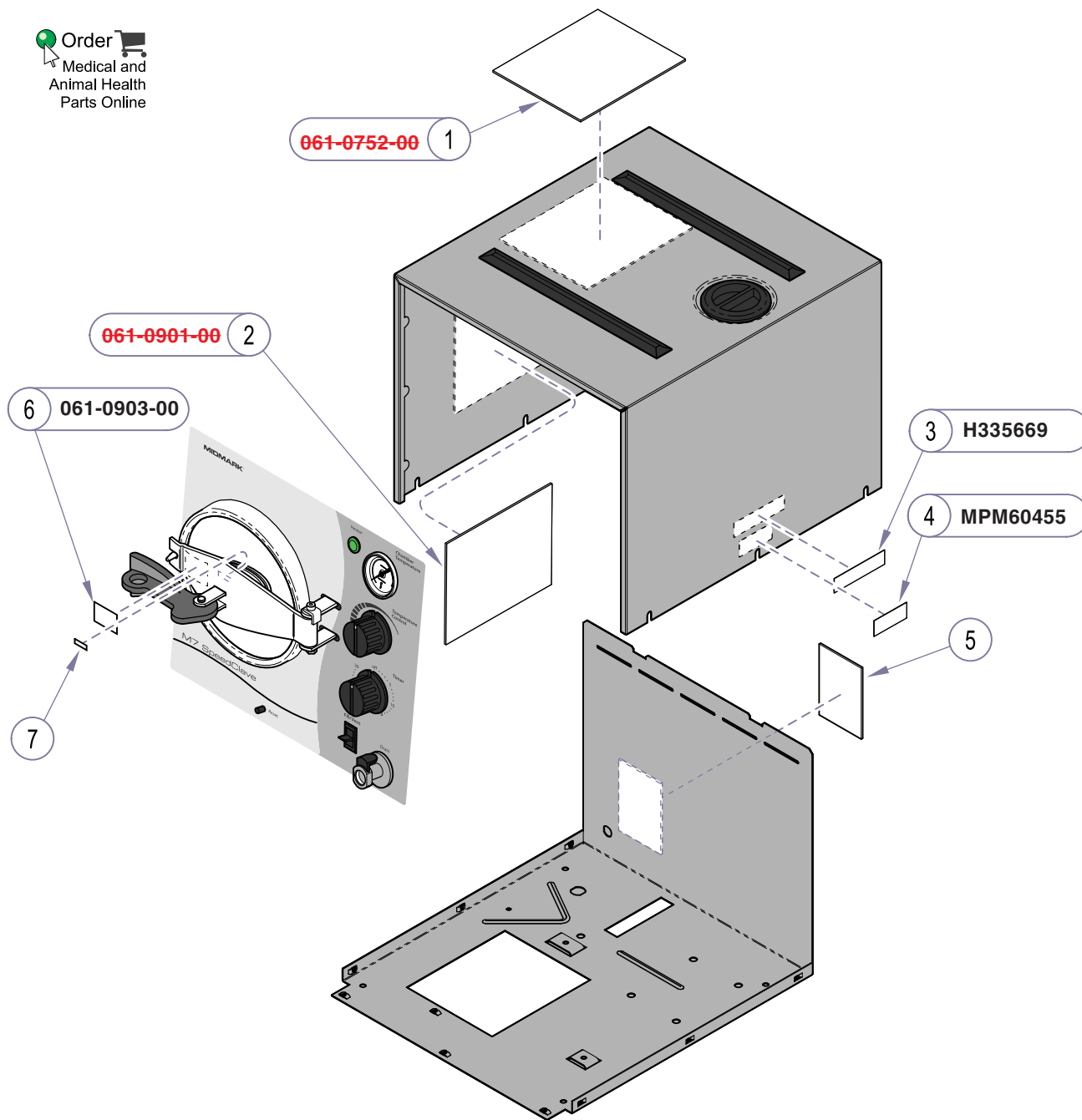
Item	Description	Qty.
1	M7 Packaging Kit - Generic (includes items 2 thru 8) .....	1
2	• Top Front Pad .....	1
3	• Top Rear Pad .....	1
4	• Bottom Rear Pad .....	1
5	• Bottom Front Pad .....	1
6	• Carton .....	1
7	• Sterilizer Cleaner ( <i>not shown</i> ) .....	1
8	• SDS Sheet ( <i>not shown</i> ) .....	1

**Always Specify Model & Serial Number**

MA514703i

**Models:** | M7 (-020 thru -022) |  
**Serial Numbers:** | all |

**Packaging**



Refer To:	Page
Operation & Troubleshooting .....	A-1
Component Testing / Repair .....	B-1
Access Procedures .....	C-1
Wiring Diagrams .....	D-1
Exploded Views / Part Numbers ..	E-1

Item	Description	Qty.
1	Operating Instructions Plate .....	1
2	Wiring Diagram Label .....	1
3	Warning Label .....	1
4	Caution Label .....	1
5	Serial Number Label (large- n/a) .....	1
6	Caution HOT Label .....	1
7	Serial Number Label (small - n/a) .....	1

Always Specify Model & Serial Number

MA674302i

## COMMENTS

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[illegible]

**ADDITIONAL COMMENTS:**

- 1) ***Use this form for all non-warranty orders only.*** *Warranty orders must be telephoned in (1-800-643-6275).*
- 2) *FAX number to send order to:*  
*877-249-1793*
- 3) *All emergency orders must be received @ Midmark by 1:00 pm EST.*
- 4) *All underlined headings should be filled in prior to submittal.*

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**DATE:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_ **TIME:** \_\_\_\_ pm

**METHOD OF SHIPMENT:** \_\_\_\_\_

**PRIORITY:** ☐ **NON-EMERGENCY ORDER** {to ship within 72 hours if part(s) are in stock.}

☐ **EMERGENCY ORDER** {to ship within 24 hours if part(s) are in stock.}  
[see note 3]

**DEALER P.O. #:** \_\_\_\_\_

**ACCOUNT #:** \_\_\_\_\_

<b><u>MODEL #:</u></b>	<b><u>SERIAL #:</u></b>	<b><u>SALES ORDER #</u></b> (if applicable)
------------------------	-------------------------	--

<b>NAME:</b> _____	<b>SHIP TO:</b> _____
<b>ADDRESS:</b> _____	_____
<b>CITY:</b> _____ <b>STATE:</b> _____ <b>ZIP:</b> _____	_____
<b>CONTACT:</b> _____	_____
<b>PHONE:</b> _____	_____
<b>FAX #:</b> _____	_____

[illegible]

<b>CREDIT CARD INFORMATION</b>		
CARD TYPE _____	CARD # _____ - _____ - _____	EXP. DATE ____ / ____ / ____
NAME ON CARD _____		SIGNATURE _____



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