M9 Sterilizer

Used on units with Serial Number Prefixes: CZ, DA, DB, DX, DY, FD, FK, LA, FL and OM

Self-Contained Steam Sterilizer

Service and Parts Manual

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

SF-1572

Part No. 004-0083-00 Rev. G (1/02)

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(*) Indicates that there has been a serial number break for the illustration and that there are additional point page(s) following the original page.

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IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this sterilizer is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this sterilizer.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this sterilizer.

Safety Alert Symbols

Throughout this manual are safety alert symbols that call attention to particular procedures. These items are used as follows:

DANGER

A DANGER is used for an imminently hazardous operating procedure, practice, or condition which, if not correctly followed, will result in loss of life or serious personal injury.

WARNING

A WARNING is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

CAUTION

A CAUTION is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

An EQUIPMENT ALERT is used for an imminently or potentially hazardous operating procedure, practice, or condition which, if not correctly followed, will or could result in serious, moderate, or minor damage to unit.

NOTE

A NOTE is used to amplify an operating procedure, practice or condition.

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed in the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the M9 sterilizer unsafe for operation.

- In the event of a malfunction, do not attempt to operate the sterilizer until necessary repairs have been made.
- Do not attempt to disassemble sterilizer, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark's authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for the M9 Sterilizers. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with Maintenance/Service Instructions (Refer to para 4.1).

B. Manual Use When Sterilizer Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on sterilizer (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with Maintenance/Service Instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with Maintenance/Service Instructions (Refer to para 4.1).

1.3 Description Of Sterilizer

A. General Description (See Figure 1-1).

The M9 Sterilizers are designed to sterilize instruments. The major components of the sterilizer consist of a pressure vessel, condensing tank assembly, heating element, temperature sensor assembly, condensing tank water level sensor (early M9 units only), pressure vessel water level sensor, pulse solenoid, thermostat, door switch, control PC board, fill solenoid, vent solenoid, bellows assembly, display PC board, and a pressure relief valve.

B. Theory of Operation (See Figures 5-1 and 5-2).

Theory Of Operation:

Power is supplied to the control PC board when the sterilizer is plugged in. At this time, the control PC board will flash the error lamp and display "E 001". This is normal and occurs when the sterilizer is first plugged in or if a power outage has occurred.

When the ON/STANDBY switch is pressed, the error lamp extinguishes and the program switches are enabled. The program lamps flash and the ON/STANDBY indicator lamp illuminates.

The operator determines the desired cycle and selects the cycle by pressing either: UNWRAPPED, POUCHES, LIQUIDS, OR PACKS button. Upon selecting the desired cycle, the control PC board sets the specific time and temperature parameters for that cycle into memory. These settings are alternately displayed on the TIME/TEMP display. Note: The control PC board will continue to use the same parameters on subsequent cycles until a new type of cycle is selected.

The operator presses the START button which signals the control PC board to initiate the cycle.

The control PC board continuously monitors for an open door condition from the time the START button is pressed until the start of the drying cycle. It does this by monitoring the door switch for continuity. If no continuity is detected after a cycle has been started, the control PC board will stop the cycle and illuminate the DOOR AJAR indicator. The DOOR AJAR indicator will continue to flash until continuity is sensed or until the STOP or ON/STANDBY button is pressed. Or, if the door is closed and continuity is sensed, the control PC board continues the cycle.

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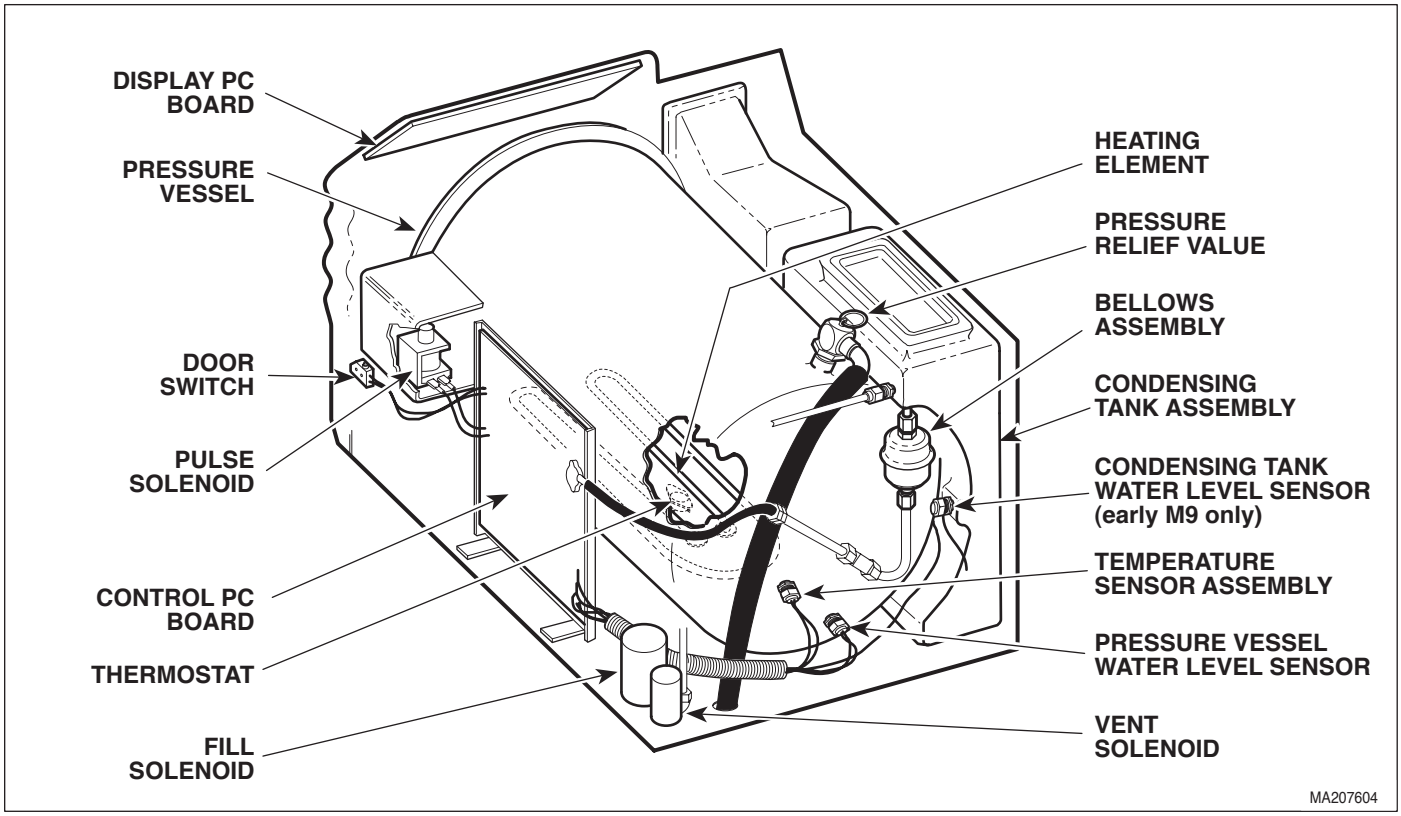

Figure 1-1. Major Components

On early units (units with an old style control PC board which has EPROM version M or before) which have a condensing tank water level sensor, the control PC board monitors the condensing tank water level when the sterilizer door is closed. The control PC board monitors the water level in the condensing tank during this portion of the cycle only, and it performs this monitoring by checking for continuity between the condensing tank water level sensor and the chassis. Water touches the sensor to complete a ground circuit, signaling the control PC board that the water level is sufficient and the cycle may be continued. Otherwise, the control PC board will stop the cycle and flash the WATER LOW indicator until water is sensed by the sensor, the STOP button is pressed, or the ON/STANDBY button is pressed. On later units (units with old style control PC board which has EPROM version N or after ***or*** new style control PC board) which do not have the condensing tank water level sensor, the control PC board monitors the pressure vessel water level sensor to determine if a low water condition in the condensing tank exists. If the pressure vessel water level sensor does not sense water within 5 minutes of starting the FILLING portion of the cycle, the control PC board stops the cycle, illuminates the WATER LOW indicator and starts sounding a beeper signal.

The control PC board illuminates the FILLING indicator and energizes the fill solenoid which allows water to flow from the condensing tank to the pressure vessel. The control PC board controls the water level in the pressure vessel by monitoring the pressure vessel water level sensor for continuity. When water completes the ground circuit between the pressure vessel water level sensor and the chassis, the control PC board de-energizes the fill solenoid.

The control PC board extinguishes the FILLING indicator lamp and illuminates the STERILIZING indicator lamp. During this portion of the cycle, temperature and pressure in the pressure vessel are continuously monitored until the drying portion of the cycle begins. A precision integrated circuit temperature sensor potted inside a brass thermowell is used to monitor the tem-

perature inside the pressure vessel. A PC board mounted piezoresistive pressure sensor, connected by plumbing to the pressure vessel, is used to monitor the pressure in the pressure vessel.

The control PC board energizes the heating element to begin heating the water in the pressure vessel. The temperature in the pressure vessel is displayed on the display PC board. As the water begins to boil, air is bled off through the bellows assembly into the condensing tank. The pressure in the pressure vessel is not displayed until the temperature in the pressure vessel reaches 208 °F (98 °C). When the bellows assembly senses pure steam flowing through it (which is around 215 °F), the valve in the bellows assembly closes, allowing the pressure in the pressure vessel to build. When the temperature corresponding to the cycle selected is reached, the control PC board de-energizes the heating element and begins to count down the remaining time left in the cycle. The remaining time is now displayed on the display PC board instead of the temperature. During this portion of the cycle, the control PC board regulates the pressure vessel temperature/pressure by energizing and de-energizing the heating element as necessary. The programmed temperatures are the minimum values, and the temperature during the cycle is regulated approximately 2 °F (1.1 °C) above those minimum values.

During the sterilizing portion of the cycle, the control PC board continuously monitors the pressure sensor, temperature sensor, door switch, STOP button, and the ON/STANDBY button. If the pressure or temperature exceeds preset limits or the status of the door switch, STOP button, or ON/STANDBY button changes, the control PC board de-energizes the heating element and initiates an error sequence.

When an error sequence is initiated, the control PC board energizes the vent solenoid, flashes the ERROR indicator, sounds a beeper signal, and displays the error code, corresponding to the cause of the error, on the TEMP/TIME display. When the pressure in the pressure vessel drops to 0.7 psi (4.8 kPa), the control PC board delays 35 seconds. The control PC board then de-energizes the vent solenoid and stops sounding the beeper signal. The ERROR indicator lamp continues to flash and the error code continues to be displayed until the STOP or ON/STANDBY button is pressed.

When the cycle's set time has elapsed, the control PC board de-energizes the heating element and energizes the vent solenoid, unless the liquids cycle was selected. If the liquids cycle was selected, the control PC board de-energizes the heating element, but does not energize the vent solenoid until the temperature in the pressure vessel drops to 223 °F (106 °C).

The control PC board monitors the pressure in the pressure vessel until it drops to 0.7 psi (4.8 kPa). At that time, the control PC board goes into a 35 second delay. At the end of the delay, the control PC board sounds a series of five beeper signals and energizes the pulse solenoid for 500 ms (except for the liquids cycle on a sterilizer that contains an old style control PC board with EPROM version H or before. If old style control PC board after version H or if it is a new style control PC board, the door will open at the end of the liquids cycle also.), which allows the door to open to the vent position. The control PC board then de-energizes the vent solenoid. The control PC board (on units with old style control PC board which has EPROM version J or after ***or*** new style control PC board), the control PC board checks that the door switch switches back to its normally open position after the door opens. Checking the door switch position ensures that the door switch is not stuck closed, which would mislead the operator to think the door was closed when it was actually ajar.

The control PC board illuminates the DRYING indicator and extinguishes the STERILIZING indicator. The control PC board begins a countdown of 30 minutes and displays this time on the TEMP/TIME display. The control PC board energizes the heating element for 45 seconds, delays two minutes, energizes the heating element for 30 seconds, delays two minutes, energizes the heating coil for a predetermined duration (the duration can be set on the dip switch assembly for different time intervals), and then delays for two more minutes. The control PC board continues to energize the heating element for xx seconds followed by a two minute delay for the rest of the drying portion of the cycle. On units with new style control PC boards, there is a dip switch assembly which contains two switches for "dry cycle element duration". There are four possible combinations for these two switches, which results in setting the heating element duration during the drying cycle; they are repeat interval setting #1, setting #2, setting #3, and setting #4. Setting #1 is shortest repeat interval, setting #2 is longer, setting #3 is longer yet, and setting #4 is the longest repeat interval. This function was added to allow adjustment of "dry cycle element duration on units which are overheating during drying cycle. The unit comes factory set at the repeat

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interval setting #3. If the sterilizer contains an old style control PC board with EPROM version L or after ***or*** a new style control PC board, the control PC board monitors the chamber for excessive pressure during the drying cycle, which indicates that the door did not open properly. If excessive pressure is detected, the drying cycle is stopped. After 30 minutes have elapsed, the control PC board illuminates the COMPLETE indicator, extinguishes the DRYING indicator, and sounds the beeper signal seven times. If the liquids cycle was selected, the DRYING indicator does not illuminate, the heating element does not energize, and the COMPLETE indicator illuminates. If the STOP button is pressed during the drying portion of the cycle, a new cycle can be initiated.

Several safety checks are present to prevent the pressure vessel from exceeding safe pressure and temperature limits. The control PC board limits the pressure and temperature from exceeding 34.5 psi (238 kPa) and 277 °F (136 °C) respectively. A pressure relief valve prevents the pressure from exceeding 35 psi (241 kPa) on older units and 40 psi (275.7 kPa) on newer units. A bi-metallic thermostat shuts off power to the control PC board if the pressure vessel temperature exceeds 295 °F (146 °C).

1.4 SPECIFICATIONS

Factual data for the sterilizer is provided in Table 1-1.

Table 1-1. Specifications

Description	Data
Dimensions (overall):	
Length	19 in (470 mm)
Width (depth)	15 in (381 mm)
Height	16 in (406 mm)
Shipping Carton	22 in x 17.75 in x 18 in (56 cm x 45 cm x 46 cm)
Weight:	
Reservoir Empty	70 lb (32 kg)
Reservoir Full	77 lb (35 kg)
With Shipping Carton	78 lb (36 kg)
Water Reservoir Capacity	Approx. 7/8 gallon (3.31 Liters to full mark)
Electrical Requirements:	
100 VAC Unit	100 VAC 50 - 60 HZ, 15 amp, single phase
115 VAC Unit	110 - 120 VAC 50 - 60 HZ, 15 amp, single phase
230 VAC Unit	220 - 240 VAC 50 - 60 HZ, 7 amp, single phase
Power Consumption:	
100 VAC Unit	1425 WATTS, 15 amps @ 100 VAC
115 VAC Unit	1425 WATTS, 12 amps @ 120 VAC
230 VAC Unit	1500 WATTS, 7 amps @ 240 VAC
Recommended Circuit:	A separate (dedicated) circuit is recommended for this sterilizer. The sterilizer *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.
Chamber Pressure:	
Operating	27 - 31 psi (186 - 215 kPa)
Minimum Before Door Is Released	0.7 psi (5 kPa)
Maximum Before Safety Valve Opens (older units).	35 psi (241 kPa)
Maximum Before Safety Valve Opens (newer units).	40 psi (275.7 kPa)
Chamber Temperature (Operating):	
Unwrapped Cycle	272-273 °F (133-134 °C)
Pouches Cycle	272-273 °F (133-134 °C)
Liquids Cycle	252-253 °F (122-123 °C)
Packs Cycle	252-253 °F (122-123 °C)
Maximum Before Thermostat Energizes	295 °F (146 °C)

1.5 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

(1) Refer to Figure 1-2 to determine the location of the model number and serial number of the sterilizer and record this data. There are different letter prefixes which proceed the serial number, depending on the configuration of the unit. These prefixes are very important and are needed to order the proper parts.

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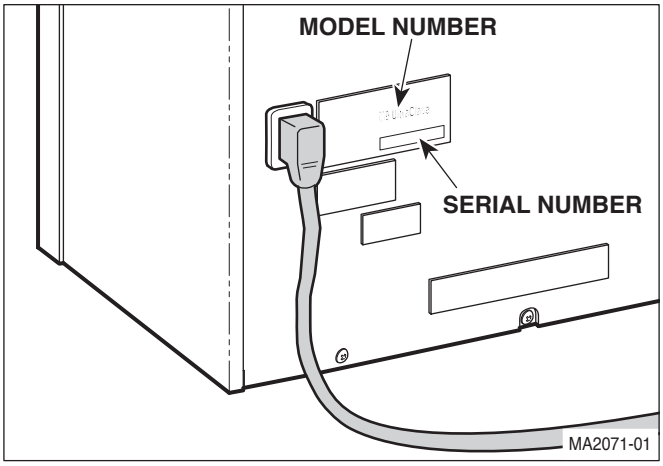

Figure 1-2. Model Number / Serial Number Location

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the sterilizer for this information. Otherwise, this information may be obtained from the dealer that sold the sterilizer.

(3) Determine the installation date of the sterilizer and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Services Department. See back cover of this manual for the phone number or use the Fax Order Form (See page 7-2 for Fax Order Form).

1.6 Special Tools

Table 1-2 lists all the special tools needed to repair the sterilizer, describes how to obtain the special tools, and describes the purpose of each special tool.

Table 1-2. Special Tool List

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Digital Multimeter (must be capable of displaying 3 digits)	Commercially Available	Any Type	Used to check probes, switches, and connections for proper function by performing continuity checks.
Water Level Sensor Wrench	Midmark Corp. 60 Vista Drive Versailles, Ohio 45380 (513) 526-3662	050-2324-00	Used to hold fitting in place so the nut that holds water level sensor can be loosened / tightened.
3/32 in. Diameter Punch	Commercially Available	Any Type	Used to remove / install two roll pins which secure door switch in place or roll pin which secures latch lever to pulse solenoid.
Pressure Gauge Test Harness	Midmark Corp. 60 Vista Drive Versailles, Ohio 45380 (513) 526-3662	002-0372-00	Used to check the pressure in the pressure vessel during a cycle to diagnose malfunctions and / or adjust the pressure range potentiometer to a correct setting.

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SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test

In order to effectively diagnose the malfunction of the M9 sterilizer, it is necessary to perform an operational test as follows:

WARNING
Refer to the operator manual for complete instructions on operating the sterilizer. Failure to do so could result in severe personal injury.

(1) Place the sterilizer on a level surface.

(2) Remove right hand side panel (Refer to para 4.3).

(3) Plug the sterilizer into a properly grounded receptacle, capable of supplying correct and adequate power to operate this sterilizer.

(4) Open sterilizer door.

(5) Press and hold down the LIQUIDS and PACKS buttons simultaneously while connecting the power cord to the sterilizer (See Figure 2-1). Release the LIQUIDS and PACKS buttons.

(6) Observe the display PC board lamps. In a left to right sequence, each lamp on the display PC board should individually illuminate and then extinguish.

(7) Press and release the UNWRAPPED, POUCHES, LIQUIDS, PACKS, START, STOP, and ON/STANDBY buttons one at a time and in this order.

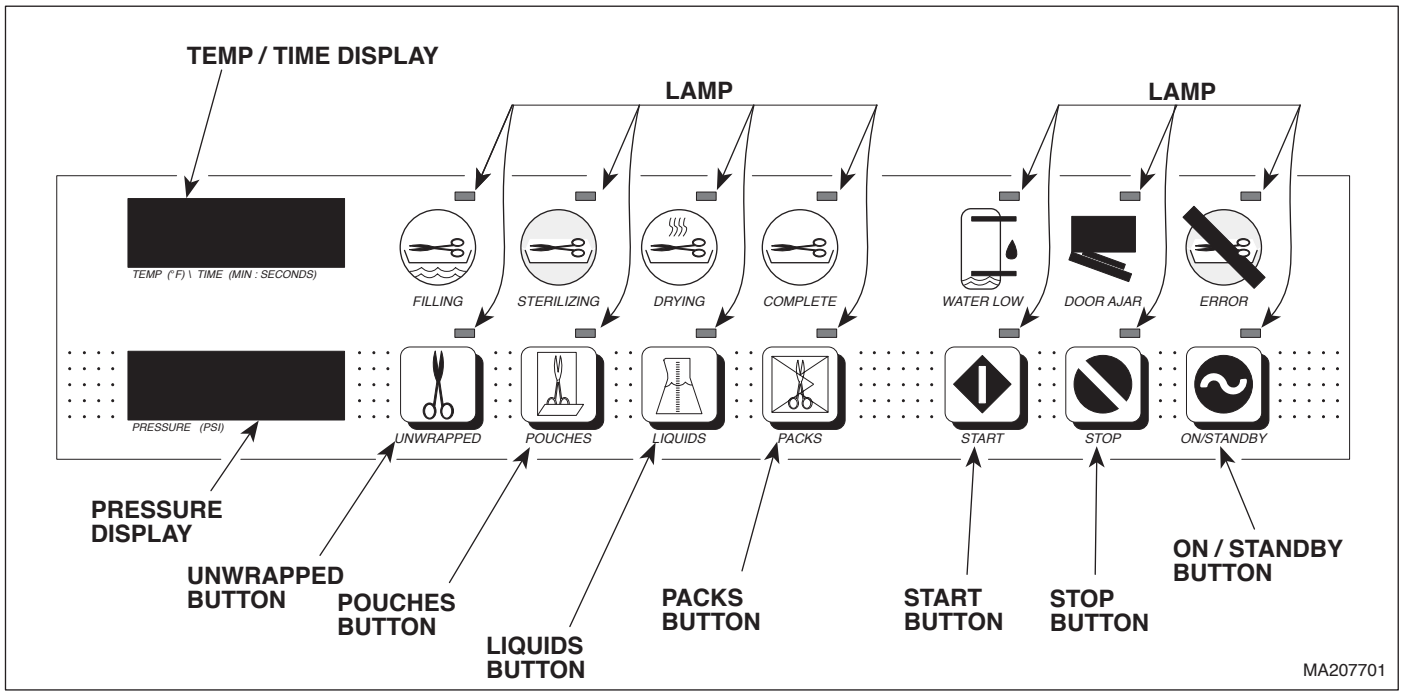

Figure 2-1. Display PC Board Lamp / Display / Button Check

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(8) Observe the lamps that correspond with each button. When each button is pressed, its corresponding lamp should illuminate and stay illuminated. Also, the PRESSURE (PSI) display should display the pressure that the control PC board is reading, and the TEMP (°F) / TIME (MIN: SECONDS) display should display the temperature that the control PC board is reading.

(9) Disconnect the power cord from the sterilizer.

(10) Connect Pressure Gauge Test Harness to sterilizer (See Figure 2-2) (Refer to Table 1-2 for special tool).

(11) Drain the water from the condensing tank.

WARNING

The following steps require the sterilizer to be plugged in to power while the operational test is being performed. Do not touch any components inside of the sterilizer. Failure to comply with these instructions could result in an electrical shock, which could result in severe personal injury or death.

(12) Connect the power cord to the sterilizer.

(13) If the sterilizer contains an old style control PC Board with EPROM version M or before, perform steps 15 thru 18; then go to step 27. If the sterilizer contains an old style control PC board with EPROM version N or after ***or*** a new style control PC board, perform steps 19 thru 26; then go to step 27.

NOTE

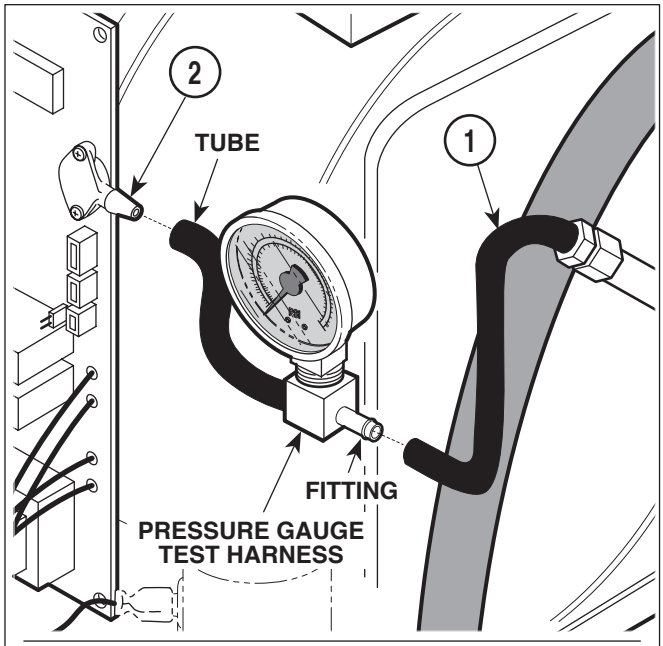
Ensure that the sterilizer door is open during the following step.

(14) Press the ON/STANDBY button, followed by the UNWRAPPED button, followed by the START button (See Figure 2-1).

NOTE

The condensing tank water level sensor may need to be dried before proceeding to the next step.

(15) Observe. The WATER LOW lamp should illuminate and a beeper signal should sound.



To connect Pressure Gauge Test Harness to sterilizer:

1. **Disconnect tube (1) from pressure sensor (2).**
2. **Connect tube of Pressure Guage Test Harness to pressure sensor (2).**
3. **Connect tube (1) to fitting of Pressure Guage Test Harness.**

To disconnect Pressure Gauge Test Harness from sterilizer:

1. **Disconnect tube (1) from fitting of Pressure Guage Test Harness.**
2. **Disconnect tube of Pressure Guage Test Harness from pressure sensor (2).**
3. **Connect tube (1) to pressure sensor (2).**

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Figure 2-2. Connecting / Disconnecting Pressure Gauge Test Harness

(16) Fill condensing tank with distilled water.

(17) Observe. The WATER LOW lamp should extinguish, the DOOR AJAR lamp should begin to flash, and the beeper signal should continue to sound. Go to step 27.

(18) Close the sterilizer door.

(19) Press the ON/STANDBY button, followed by the UNWRAPPED button, followed by the START button (See Figure 2-1).

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(20) Observe. The FILLING lamp should illuminate. After approximately 5 minutes, the FILLING lamp should extinguish, the WATER LOW lamp should illuminate and a beeper signal should sound.

(21) Press the STOP button followed by the ON/STANDBY button.

(22) Fill condensing tank with distilled water.

(23) Open the sterilizer door.

(24) Press the ON/STANDBY button, followed by the UNWRAPPED button, followed by the START button (see Figure 2-1).

(25) Observe. The DOOR AJAR lamp should begin to flash, and the beeper signal should start to sound. Go to step 27.

(26) Close the sterilizer door.

(27) Observe. The DOOR AJAR lamp should extinguish and the beeper sound should stop. The FILLING lamp should illuminate. After 30 - 90 seconds, the FILLING lamp should extinguish and the STERILIZING lamp should illuminate. Should begin to hear water boiling in the pressure vessel and steam and air releasing through the bellows assembly.

(28) Observe. At 205 °F (96°C), should begin to hear the bellows assembly close. At approximately 215 °F (102 °C), should hear the bellows assembly close completely (hissing sound stops). The PRESSURE (PSI) display should begin to display pressure.

(29) When the “heat up” portion of the cycle is complete and the elapsed time is being counted down on the display PC board, compare the pressure displayed on the PRESSURE (PSI) display to the pressure displayed on the Pressure Gauge Test Harness. The two pressures should agree with each other within ± 0.5 psi (3.5 kPa).

(30) Observe. When the time elapsed on the TEMP (°F)/TIME (MIN : SECONDS) display reaches zero, the vent solenoid should energize. Should hear steam and air venting into the condensing coil. The TEMP (°F)/TIME (MIN : SECONDS) display should show the temperature in the pressure vessel decreasing and the PRESSURE (PSI) display should show the pressure in the pressure vessel decreasing. When the pressure drops to approximately 0.7 psi (5 kPa) on the PRESSURE (PSI) display, there should be a 35 second pause; then a series of five beeper signals should sound and the pulse solenoid should energize. The sterilizer door should open, but only to the first door stop.

(31) Stop the sterilizer from proceeding into the drying portion of the cycle by pressing the STOP button.

(32) Set the multimeter to read at least 5 VDC. Connect the red lead of the multimeter to Test Point (A, Figure 4-28) and the black lead of the multimeter to Test Point (B).

(33) Observe. The multimeter should read 2.550 VDC ±0.001 VDC.

(34) If sterilizer does not operate correctly as described in steps 1 thru 34, replace the malfunctioning component(s) or perform the adjustment(s) that are necessary to correct the problem. If necessary, refer to Table 2-1, Troubleshooting Guide, to determine the exact cause of the malfunction.

(35) Disconnect power cord from sterilizer.

(36) Disconnect Pressure Gauge Test Harness from sterilizer (See Figure 2-2).

(37) Install right hand side panel (Refer to para 4.3).

2.2 Troubleshooting Procedures (see next page)

Table 2-1 is a troubleshooting guide which is used to determine the cause of the malfunction.

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Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Error code is initiated during cycle.	Error code 1 is initiated during cycle (power interruption to control PC board).	Control PC board connections loose.	Check all wiring connections.	Clean any dirty connections. Tighten any loose connections. Replace damaged connections.
		Power outage.	_	Initiate new cycle after allowing sterilizer to cool.
		Thermostat activated because vent solenoid, fill solenoid, or bellows malfunctioned.	Check that pressure vessel fills with water properly and stays in chamber during the cycle.	Replace vent solenoid, fill solenoid, or bellows assembly. Refer to para 4.11, 4.12, or 4.7.
		Thermostat activated during drying cycle due to high facility input voltage or high resistance in heating element.	Check facility input voltage. Voltage should not be over 120 VAC.	Adjust the dry cycle time dip switches. Refer to para 4.27.
			Check resistance of heating element: 100 V - 6.81 to 7.52 ohms 120 V - 9.77 to 10.80 ohms 240 V - 40.46 to 44.71 ohms	If resistance is out of limits, replace heating element. Refer to para 4.18.
		Thermostat malfunctioning - stuck open.	Perform continuity check on thermostat (is N.C.).	Replace thermostat. Refer to para 4.16.
	Error code 2 is initiated during cycle (STOP button is pushed during cycle).	Operator initiated.	_	Restart cycle after beeper signal stops.
	Error code 3 is initiated during cycle (ON/STANDBY button is pushed during cycle).	Operator initiated.	_	Restart cycle after beeper signal stops.
	Error code 4 is initiated during cycle (door is ajar).	Door latch not closed completely.	Check for free movement of the door latch.	Clean/lubricate door latch and door pins.
		Door switch connection loose.	Check door switch connection.	Clean any dirty connections, tighten any loose connections, and replace damaged connections.
		Door switch malfunctioning.	Perform continuity check on door switch.	Replace door switch. Refer to para 4.14.
		Door switch spring movement hampered.	Check for free door switch spring movement.	Replace/clean door switch spring.
	Error Code 5 is initiated during cycle [pressure during cycle exceeds 35 psi (240 kPa)].	Sterilizer overloaded.	Check that pressure vessel is not overloaded with heavy linen packs.	Instruct operator to reduce load size.
		Pressure zero and pressure range potentiometers out of adjustment.	Check calibration of potentiometers with Pressure Gauge Test Harness.	Adjust pressure zero and pressure range potentiometers. Refer to para 4.24.
		Temperature potentiometer out of calibration.	Check calibration of temperature potentiometer.	Adjust temperature potentiometer. Refer to para 4.24.
		Bellows assembly malfunctioning.	Run cycle and check that bellows assembly closes at 203-210 degrees F (95 - 99 degrees C).	Replace bellows assembly. Refer to para 4.7.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Error code is initiated during cycle - Continued.	Error Code 5 is initiated during cycle [pressure during cycle exceeds 35 psi (240 kPa)] - Continued.	Temperature sensor assembly malfunctioning.	Replace suspect temperature sensor assembly with known working temperature sensor assembly.	Replace temperature sensor assembly. Refer to para 4.9.
	Error code 6 is initiated during cycle [temperature during cycle exceeds 277 degrees F (136 degrees C)].	Sterilizer overloaded.	Check that pressure vessel is not overloaded with heavy linen packs.	Instruct operator to reduce load size.
		Temperature potentiometer out of calibration.	Check calibration of temperature potentiometer.	Adjust temperature potentiometer. Refer to para 4.24.
		Pressure zero and pressure range potentiometers out of adjustment.	Check calibration of potentiometers with Pressure Gauge Test Harness.	Adjust pressure zero and pressure range potentiometers. Refer to para 4.24.
		Temperature sensor assembly malfunctioning.	Replace suspect temperature sensor assembly with known working temperature sensor assembly.	Replace temperature sensor assembly. Refer to para 4.9.
	Error code 7 is initiated during cycle (low pressure during cycle).	Fill solenoid valve is leaking.	Check for high water level in pressure vessel during cycle.	Replace/clean fill solenoid. Refer to para 4.12.
		Vent solenoid is leaking.	Check for water leakage from condensing coil during cycle.	Replace/clean vent solenoid Refer to para 4.11.
		Bellows assembly is malfunctioning.	Listen for steam escaping during cycle.	Replace bellows assembly. Refer to para 4.7.
		Pressure zero and pressure range potentiometers out of adjustment.	Check calibration of potentiometers with Pressure Gauge Test Harness.	Adjust pressure zero and pressure range potentiometers. Refer to para 4.24.
		Door gaskets leaking.	Remove gaskets and check for dirt on gaskets, deterioration of gaskets, or voids in gaskets.	Replace/clean door gaskets. Refer to para 4.20.
	Error code 8 is initiated during cycle (door switch did not change status after the pulse solenoid actuated and opened the door).	Door switch is malfunctioning.	Perform continuity check on door switch.	Replace door switch. Refer to para 4.14.
		Door spring sticking.	Check for free door switch spring movement.	Replace/clean door switch spring.
		Door does not automatically open at the end of the cycle (see elsewhere in this troubleshooting section).	–	–

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Error code is initiated during cycle - Continued.	Error code 9 is initiated during cycle (pressure buildup in the pressure vessel during drying cycle).	The pulse solenoid actuated the door latch, but the door latch lifted and dropped back down without the door opening.	Check for free operation of the door and door latch mechanism.	Adjust, clean, and/or lubricate door components.
		Door release spring sticking.	Make sure the door release spring pushes the door out to the first catch when the door is opened by hand.	Adjust door release spring.
		Pressure zero potentiometer is out of adjustment.	Perform pressure zero potentiometer adjustment.	Adjust pressure zero potentiometer. Refer to para 4.24.
		Door was shut sometime during drying cycle.	Check with operator to see if he / she shut the door.	Inform operator not to shut the door during drying cycle.
	Error code 10 is initiated during cycle (watchdog timer reset error).	Control PC board has had a software / hardware failure.	Unplug power cord from sterilizer. Wait 5 seconds and then replug power cord into sterilizer.	If error code shows up continually, replace control PC board. Refer to para 4.13.
	Error code 11 is initiated during cycle (software interrupt error).	Control PC board has had a software / hardware malfunction.	Unplug power cord from sterilizer. Wait 5 seconds and then replug power cord into sterilizer.	If error code shows up continually, replace control PC board. Refer to para 4.13.
	Error code 12 is initiated during cycle (ram test error).	Control PC board has failed self-diagnostic check when powered up due to a software / hardware malfunction.	Unplug power cord from sterilizer. Wait 5 seconds and then replug power cord into sterilizer.	If error code shows up continually, replace control PC board. Refer to para 4.13.
Sterilizer has no power.	No response when ON/STANDBY is pushed (no lamps illuminate).	Sterilizer is not plugged in.	Check that power cord is plugged in to sterilizer and outlet.	Plug in power cord to sterilizer or outlet.
		Fuse blown on control PC board.	Perform continuity check on control PC board fuses.	Replace fuses.
		Thermostat activated.	Check for voltage at input to control PC board from thermostat.	Wait for sterilizer to cool. Re-check voltage. If none, replace thermostat. Refer to para 4.16.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Sterilizer malfunctions during filling portion of cycle.	Pressure vessel will not fill or fills slowly with water during filling portion of cycle.	Pressure vessel water level sensor wet from previous cycle - causing fill cycle to be skipped.	Check pressure vessel water level sensor area for moisture.	Allow pressure vessel water level sensor to air dry or remove and hand dry. Refer to para 4.9.
		Filter / tubing plugged.	Remove filter and tubing and inspect.	Replace / clean filter and/or tubing. Refer to para 4.17.
		Pressure vessel water level sensor malfunctioning or dirty.	Perform continuity check on pressure vessel water level sensor.	Replace/clean pressure vessel water level sensor. Refer to para 4.9.
	Pressure vessel over fills with water during filling portion of cycle.	Fill solenoid malfunctioning or stuck.	Replace suspect fill solenoid with known working fill solenoid.	Replace / clean fill solenoid. Refer to para 4.11.
		Pressure vessel water level sensor malfunctioning or dirty.	Perform continuity check on pressure vessel water level sensor with and without water on sensor. With water, there should be continuity, without none.	Replace / clean pressure vessel water level sensor. Refer to para 4.9.
		Control PC board malfunctioning.	If continuity check of pressure vessel water level sensor is okay, replace control PC board.	Replace control PC board. Refer to para 4.12.
		Loose, broken, or dirty connection between pressure vessel water level sensor and control PC board.	Perform continuity check between connector and pressure vessel water level sensor.	Replace/clean broken wires or connections.
		Sterilizer is not level.	Check sterilizer for level installation.	Re-install sterilizer on a level surface, adjust height of individual foot levelers, or shim up sterilizer.
Sterilizer does not seem to end its sterilization cycle so the drying cycle may be started.	OPEN THE DOOR indicator lamp does not illuminate, beeper signals do not sound, and "dddd" code does not display on the TEMP / TIME display at the end of the sterilization cycle.	Pressure zero potentiometer out of calibration.	Perform display PC board check which will show you the pressure zero potentiometer setting.	Adjust pressure zero potentiometer. Refer to para 4.22.
Sterilizer operating temperature too low.	Pressure vessel temperature does not go above 212 degrees F (100 degrees C) during "heat up" portion of sterilizing cycle.	Bellows assembly malfunctioning.	Run cycle and check that bellows assembly closes at 203-210 degrees F (95 - 99 degrees C). Also, listen for excessive steam leaking out of bellows assembly.	Replace bellows assembly. Refer to para 4.7.
		Door gaskets leaking.	Check for steam leaking around door. Remove gaskets and check for dirt on gaskets, deterioration of gaskets, or voids in gaskets.	Replace / clean door gaskets. Refer to para 4.18.
	Pressure vessel temperature never reaches sterilization temperature to begin cycle countdown.	Heating element resistance is out of limits.	Check resistance of heating element: 120 V - 9.77 to 10.80 ohms	I f resistance is out of limits, replace heating element. Refer to para 4.16.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Sterilizer not drying instruments properly.	Instruments are wet after drying cycle is complete.	Door is not opening at end of vent portion of cycle.	See problem. Door does not automatically open at the end of vent portion of cycle.	
		Sterilizer is not level.	Check sterilizer for level installation.	Re-install sterilizer on a level surface, adjust height of individual foot levelers, or shim up sterilizer.
		Filter is plugged.	Check that no water is left in pressure vessel after venting portion of cycle.	Replace/clean filter. Refer to para 4.17.
Steam does not exhaust from pressure vessel or exhausts slowly.	"OPEN THE DOOR" L.E.D. illuminates after longer than normal venting period.	Pressure vessel drain, filter, or vent piping plugged.	Remove filter and tubing and inspect.	Clean, drain, and flush tubing. Replace/clean filter. Refer to para 4.17.
		Vent solenoid malfunctioning or stuck.	Check resistance of solenoid coil: 120V unit - 1170 ohms	Replace/clean vent solenoid. Refer to para 4.10.
After a cycle is started, code "C001" (low water) displays on the TEMP / TIME display and a beeper signal starts.	Cycle will not run.	Water level in condensing tank is too low.	Check water level in condensing tank.	Inform operator of the meaning of the code "C001".
	Code "C001" and beeper signal indicates water level in condensing tank is low even though there is plenty of water in condensing tank.	Fill solenoid is malfunctioning or stuck, preventing water from entering the pressure vessel.	Check resistance of solenoid coil: 120V unit - 140 ohms	Replace fill solenoid. Refer to para 4.11.
		Pressure vessel water level sensor is corroded, causing an open circuit at all times.	Check for corrosion. Perform continuity check on pressure vessel water level sensor. There should be continuity when sensor is under water.	Replace or clean pressure vessel water level sensor. Refer to para 4.9.
	Code "C001" illuminates, but chamber is overfilled with water.	Temperature sensor is malfunctioning, causing water sensor circuit to malfunction (preventing water level sensor from detecting water).	Replace suspect temperature sensor with known working temperatrue sensor.	Replace temperature sensor. Refer to para 4.8.
Door is obstructed/binding.	Door is hard to open or close.	Door panel needs adjusted.	Check for interference.	Loosen door panel screws, adjust door, and tighten screws.
		Door latch binding.	Operate door latch by hand to check for resistance.	Clean/lubricate door latch.
		Steam block hitting inside of door cover.	Check for interference.	Loosen screws, adjust steam block, and tighten screws.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
WATER LOW indicator circuit is malfunctioning.	WATER LOW indicator illuminates when condensing tank is full or does not illuminate when condensing tank is low.	Silicone tube is cut or not keeping terminal from touching nut which causes grounding (only on units with old style control PC board with EPROM version M or before).	Check for continuity between terminal and nut.	Replace silicone tube. Refer to para 4.8.
		Condensing tank water level sensor malfunctioning or dirty (only on units with old style control PC board with EPROM version M or before).	Perform continuity check on condensing tank water level sensor.	Replace/clean condensing tank water level sensor. Refer to para 4.8.
		WATER LOW lamp on display PC board malfunctioning.	Replace display PC board with known working display PC board.	Replace display PC board. Refer to para 4.21.
		Control PC board malfunctioning.	Unplug condensing tank water level sensor connector from Control PC board, start a cycle, and observe. WATER LOW lamp should flash after approximately 5 minutes.	Replace control PC board. Refer to para 4.13.
	WATER LOW indicator illuminates, but chamber is overfilled with water.	Temperature sensor is malfunctioning, causing water sensor circuit to malfunction (preventing water level sensor from detecting water).	Replace suspect temperature sensor with known working temperature sensor.	Replace temperature sensor. Refer to para 4.9.
Door is obstructed/binding.	Door is hard to open or close.	Door panel needs adjusted.	Check for interference.	Loosen door panel screws, adjust door, and tighten screws.
		Door latch binding.	Operate door latch by hand to check for resistance.	Clean/lubricate door latch.
		Steam block hitting inside of door cover.	Check for interference.	Loosen screws, adjust steam block, and tighten screws.

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SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the sterilizer. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of sterilizer for obvious damage such as: cracks in components, missing components, dents in components, leaks, or any other visible damage which would cause sterilizer to be unsafe to operate or would compromise the performance of the sterilizer. Repair sterilizer if necessary.
	Fasteners/hardware	Check sterilizer for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary using Loctite 271 if necessary.
	Moving parts	All moving parts should be lubricated with high temperature grease.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Display overlay	Check for missing, damaged, or illegible display overlay. Replace display overlay if necessary.
	Wiring connections	Check the integrity of all wiring connections. Clean all dirty connections. Tighten any loose connections. Replace any damaged connections.
	Free movement of door latch	Clean door latch. Lubricate door latch and door pins with high temperature grease.
	Free movement of door switch spring	Clean door switch spring. Lubricate door switch spring with high temperature grease. Replace door switch spring if necessary.
	Latch lever	Operate latch lever by hand to check for resistance. Clean latch lever. Lubricate latch lever with high temperature grease.
	Door and Dam gaskets	Remove gaskets and check for dirt on gaskets, deterioration of gaskets, or voids in gaskets. Clean gaskets using a mild soap and water solution. Replace gaskets if necessary. Refer to para 4.20.
	Filter	Clean filter using a mild soap and water solution. Replace filter if necessary. Refer to para 4.19.
	Pressure vessel water level sensor	Remove any build-up from pressure vessel water level sensors. Replace sensor if necessary. Refer to para 4.10.
	Condensing tank water level sensor (early units only)	Remove any build-up from condensing tank water level sensor. Replace sensor if necessary. Refer to para 4.8.
	Tubing	Remove tubing and inspect for buildup. Clean, drain, and flush tubing. Replace tubing if necessary.
	Display PC board	Perform the display PC board lamp/display/button check. Refer to para 4.25. Replace display PC board if necessary.
	Pressure relief valve	Perform a pressure relief valve check. Refer to para 4.26. Replace pressure relief valve if necessary. Refer to para 4.23.
	Printer (optional equipment)	Check that printer prints properly. Replace ribbon cartridge if necessary. Replace printer if necessary.
	Operational test	Perform an operational test to determine if the sterilizer is operating within its specifications (Refer to para 2.1). Replace any malfunctioning components. Adjust the control PC board potentiometers if necessary. Refer to para 4.24.

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SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

WARNING
Always disconnect the power cord from the outlet before removing any of the sterilizer covers/panels or making any repairs to prevent the possibility of electrical shock. Also, drain the sterilizer to prevent spills during repairs. Failure to comply with these instructions could result in serious personal injury or death.

The following paragraphs contain replacement, repair, and adjustment procedures for the sterilizer.

4.2 Top Cover Removal / Installation

A. Removal

(1) Disconnect power cord from the outlet.

(2) If the sterilizer contains a printer, remove printer (Refer to Operation Manual).

(3) Open sterilizer door.

(4) Remove two screws (1, Figure 4-1) and steam block (2) from top cover (3).

(5) Remove four screws (4) and two screws (5) from top cover (3).

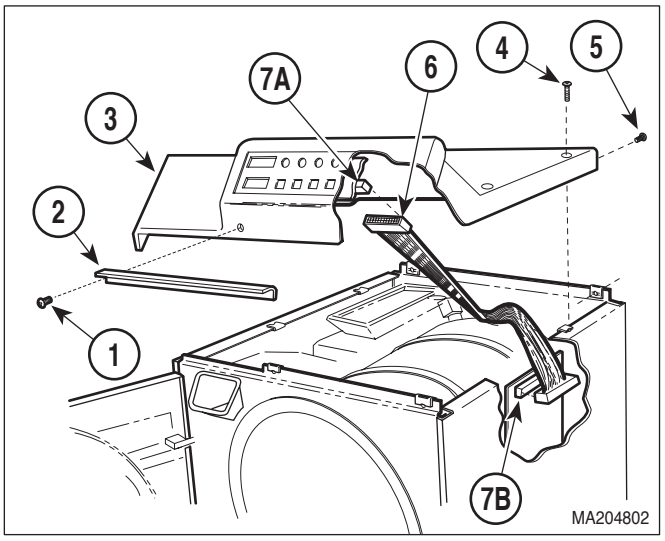

Figure 4-1. Top Cover Removal / Installation

(6) On units which apply, carefully break front of top cover (3) loose from silicone sealant.

EQUIPMENT ALERT
Lift top cover carefully and slowly. Ribbon connector is still connected to display PC board and any excess pressure exerted on it could result in a damaged ribbon connector or display PC board.

(7) Lift rear of top cover (3) and disconnect ribbon connector (6) from display PC board (7A) or control PC board (7B) (depending on whether ribbon connector (6) is part of display PC board or is a separate component).

(8) Remove top cover (3) from sterilizer.

B. Installation

(1) Coat mating surfaces of front panel lip and top cover (3) with silicone sealant.

(2) Position top cover (3) over sterilizer, with rear of top cover raised, and connect ribbon connector (6) to display PC board (7A) or control PC board (7B).

(3) Install top cover (3) on sterilizer and secure using two screws (5) and four screws (4).

(4) Install steam block (2) on top cover (3) and secure using two screws (1).

(5) Close sterilizer door.

(6) If the sterilizer contains a printer, install printer (Refer to Operation Manual).

4.3 Right Hand Side Panel Removal / Installation

A. Removal

(1) Disconnect power cord from the outlet.

(2) Remove two screws (1, Figure 4-2) from top cover (2).

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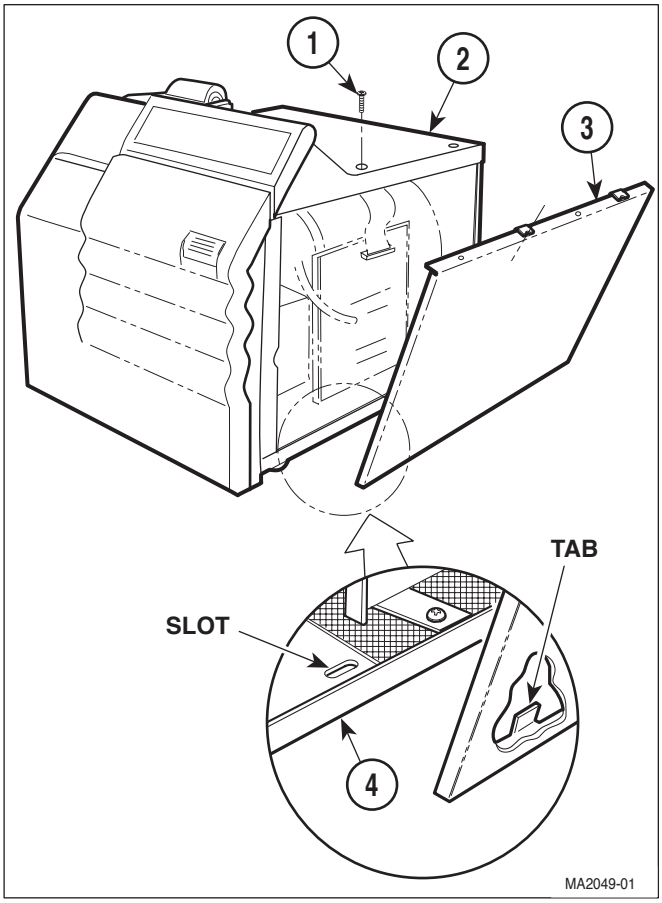

Figure 4-2. Right Hand Side Panel Removal / Installation

(3) Pull outward and down on the top edge of the right hand side panel (3) and remove right hand side panel from sterilizer.

B. Installation

(1) Insert two tabs of right hand side panel (3) into two slots of base (4).

(2) Raise top edge of right hand side panel (3) into position and secure using two screws (1).

4.4 Left Hand Side Panel Removal / Installation

A. Removal

(1) Disconnect power cord from the outlet.

(2) Open sterilizer door.

(3) Remove left screw (1, Figure 4-3) from steam block (2).

(4) Remove two screws (3) from top cover (4).

(5) Lift up the left hand corner of top cover (4), pull outward and down on the top edge of the left hand side panel (5), and remove left hand side panel from sterilizer.

B. Installation

(1) Insert two tabs of left hand side panel (5) into two slots of base (6).

(2) Lift up the left hand corner of top cover (4), raise the top edge of left hand side panel (5) into position, and secure using two screws (3).

(3) Install left screw (1) on steam block (2).

(4) Close sterilizer door.

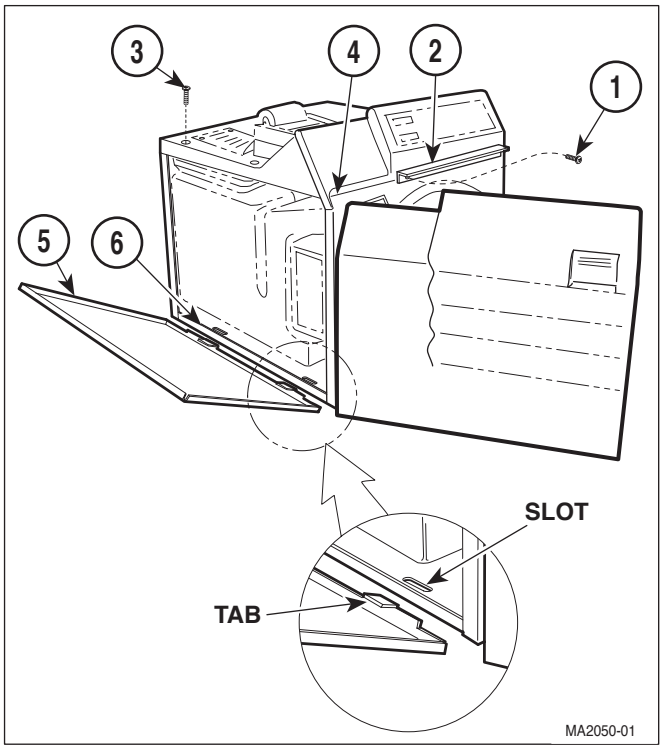

Figure 4-3. Left Hand Side Panel Removal / Installation

4.5 Back Panel Removal / Installation

A. Removal

(1) Disconnect power cord from sterilizer.

(2) Remove right hand side panel (Refer to para 4.3).

(3) Remove left hand side panel (Refer to para 4.4).

(4) Remove four screws (1, Figure 4-4) from back panel (2).

(5) Partially remove back panel (2) by simultaneously pulling downward and outward on back panel.

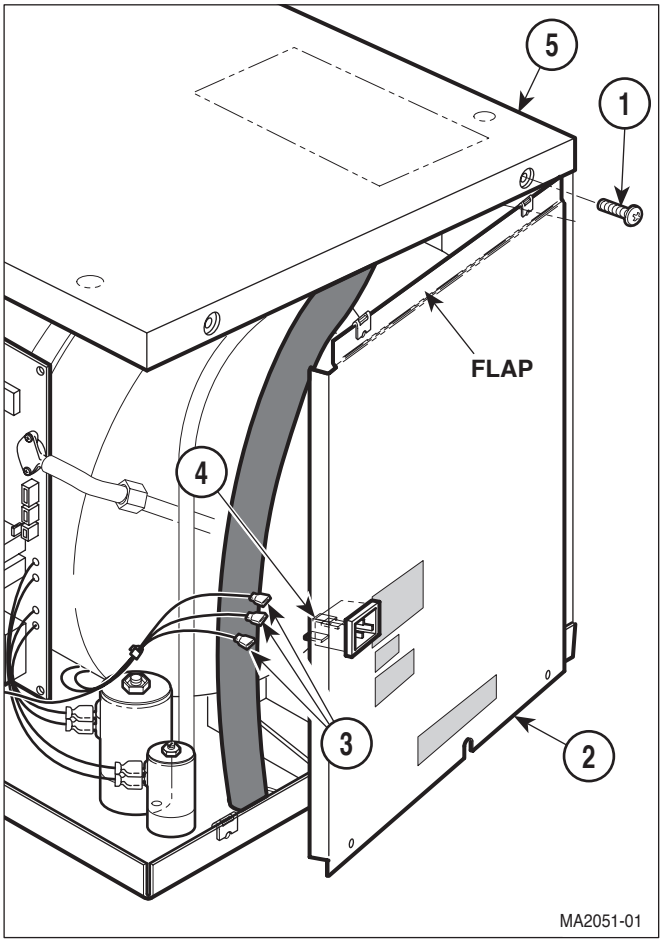

Figure 4-4. Back Panel Removal / Installation

EQUIPMENT ALERT
Ensure that wires are completely disconnected before attempting to remove back panel. Failure to do so could result in damage to sterilizer.

NOTE
Units prior to serial number CZ1110/OM1000 have a fuse holder attached to the back panel. On these sterilizers, tag and disconnect two wires from the receptacle and one wire from the fuse holder instead of performing step 6.

(6) On older units, tag and disconnect three wires (3) from terminals of receptacle (4) and remove back panel (2) from sterilizer. On newer units, separate back panel (2) from unit as far as possible and lay it on its side.

B. Installation

NOTE
Units prior to serial number CZ1110/OM1000 have a fuse holder attached to the back panel. On these sterilizers, remove tags and connect two wires to the receptacle and one wire to the fuse holder instead of performing step 1.

(1) On older units, remove tags and connect three wires (3) to terminals of receptacle (4).

(2) Position flap of back panel (2) behind top cover (5) and secure back panel in place using four screws (1).

(3) Install left hand side panel (Refer to para 4.4).

(4) Install right hand side panel (Refer to para 4.3).

4.6 Base Inspection Cover Removal / Installation

A. Removal

(1) Disconnect power cord from outlet.

(2) Drain water from condensing tank.

(3) Turn sterilizer onto its back.

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(4) Remove two screws (1, Figure 4-5) and base inspection cover (2) from base (3).

B. Installation

(1) Install base inspection cover (2) on base (3) and secure using two screws (1).

(2) Turn sterilizer upright.

(3) Refill condensing tank with distilled water.

4.7 Bellows Assembly Removal / Installation

A. Removal

(1) Remove back panel (Refer to para 4.5).

(2) Disconnect tube (1, Figure 4-6) from tee (2).

(3) Pull downward on bellows assembly (3) to remove bellows assembly from condensing tank (4).

(4) Loosen and remove tubes (1 and 5) from bellows assembly (3).

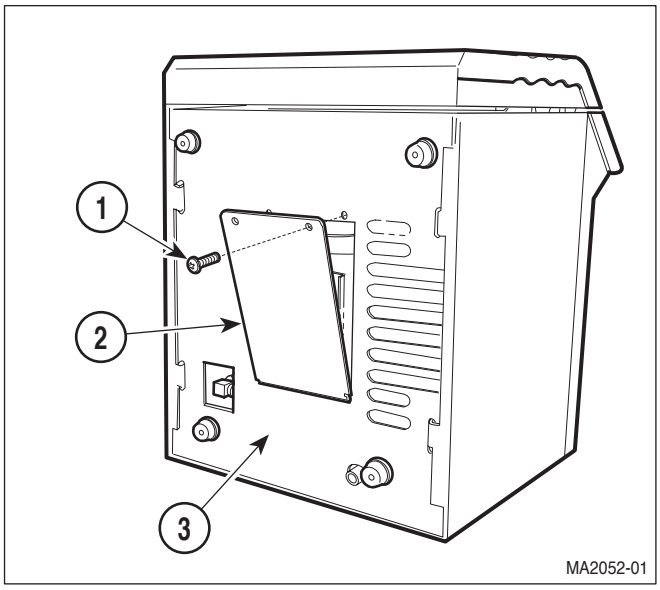

Figure 4-5. Base Inspection Cover Removal / Installation

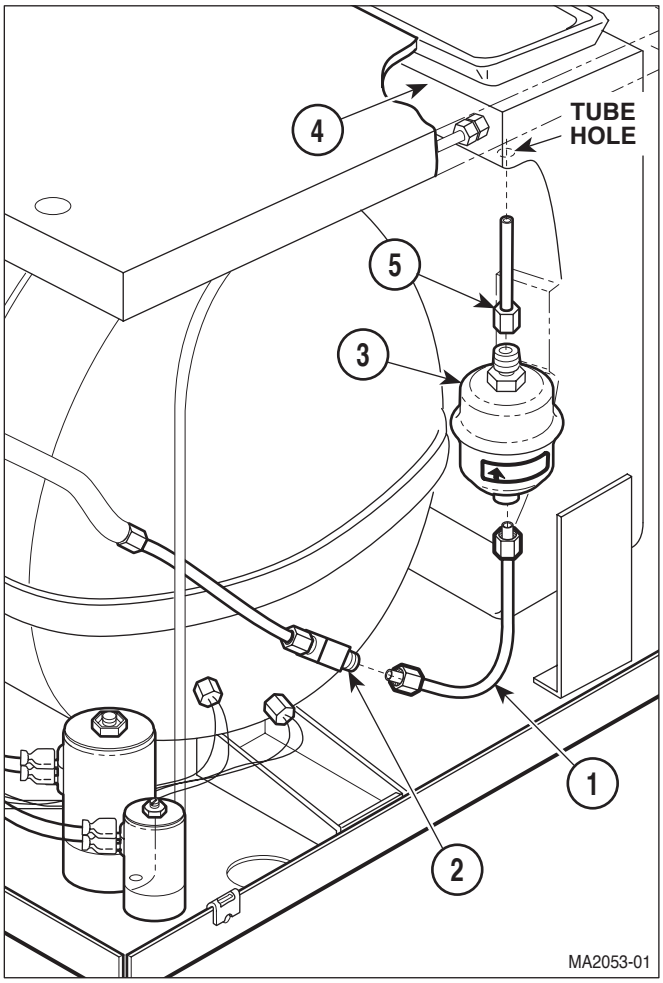

Figure 4-6. Bellows Assembly Removal / Installation

B. Installation

(1) Connect tubes (1 and 5) to bellows assembly (3).

(2) Position bellows assembly (3) and insert tube (5) into tube hole of condensing tank (4).

(3) Connect tube (1) to tee (2).

(4) Install back panel (Refer to para 4.5).

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4.8 Condensing Tank Water Level Sensor Removal / Installation (Applies only to Units with old style Control PC Board with EPROM Version M or Before)

NOTE
Units with old style control PC board with EPROM version N or after ***or*** new style control PC board do not have a condensing tank water level sensor.

A. Removal

(1) Drain water from condensing tank.

(2) Remove back panel (Refer to para 4.5).

(3) Remove bellows assembly (Refer to para 4.7).

(4) Disconnect wire (1, Figure 4-7) from terminal (2).

(5) Using Water Level Sensor Wrench to hold fitting (3), loosen nut (4) (Refer to Table 1-2 for special tool).

(6) Pull assembled level sensor rod (5) from fitting (3).

(7) Remove nut (4), silicone tube (6), and crimp (7) from level sensor rod (5). Discard silicone tube and crimp.

(8) Using vise grips to hold level sensor rod (5), remove nut (8) and terminal (2) from level sensor rod.

B. Installation

(1) Using vise grips to hold level sensor rod (5), install terminal (2) on level sensor rod and secure using nut (8).

EQUIPMENT ALERT
The end of the silicone tube must extend past nut (4) after nut is installed. If it is not, the level sensor rod will not function properly because the terminal will be in contact with nut (4).

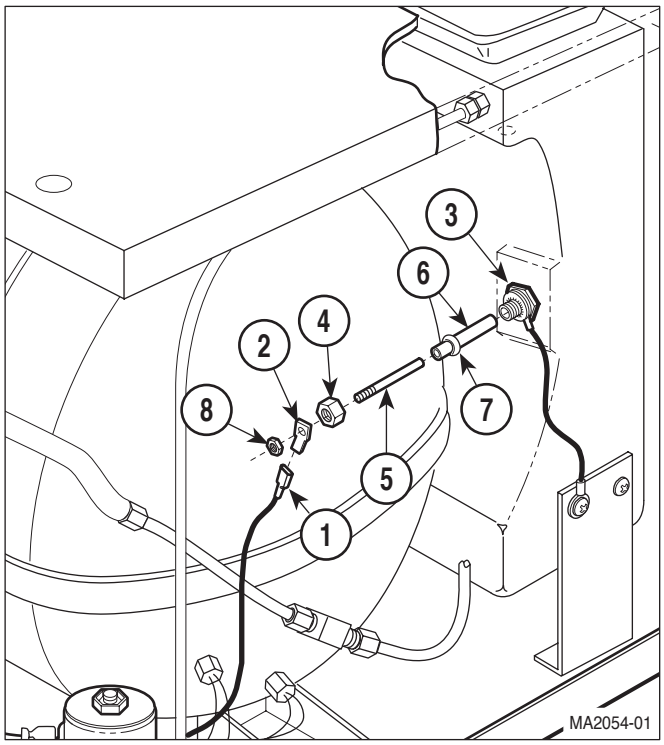

Figure 4-7. Condensing Tank Water Level Sensor Removal / Installation

(2) Install crimp (7), nut (4), and silicone tube (6) on level sensor rod (5) and secure by crimping crimp (7).

(3) Install assembled level sensor rod (5) in fitting (3).

(4) Using Water Level Sensor Wrench to hold fitting (3), tighten nut (4) (Refer to Table 1-2 for special tool).

(5) Connect wire (1) to terminal (2).

(6) Install bellows assembly (Refer to para 4.7).

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(7) Install back panel (Refer to para 4.5).

(8) Refill condensing tank with distilled water.

4.9 Temperature Sensor Assembly Removal / Installation

A. Removal

(1) Remove back panel (Refer to para 4.5).

NOTE
Units with old style control PC board with EPROM version N or after ***or*** new style control PC board will only have two wire harnesses to disconnect instead of three.

(2) Disconnect two / three wire harnesses (1, Figure 4-8) from two / three terminals (2).

(3) Remove flex guard tubing (3) from two / three wire harnesses (1).

(4) Remove temperature sensor assembly (4) from pressure vessel (5).

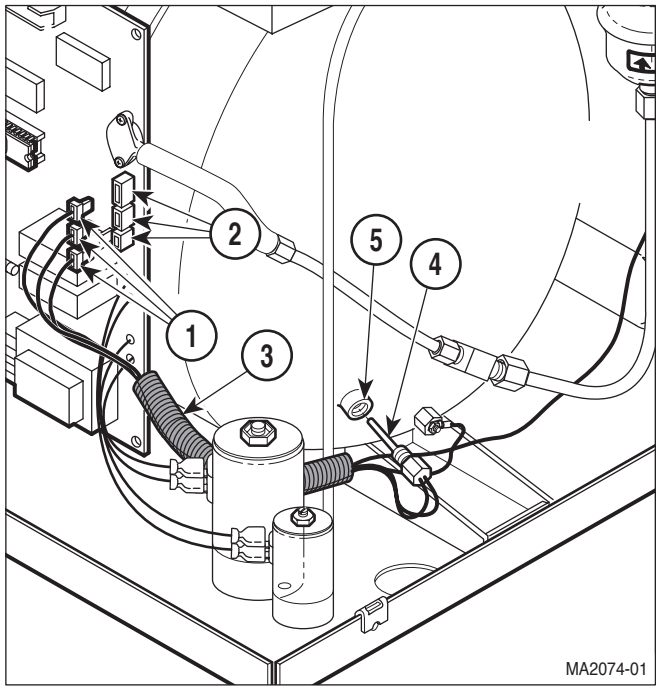

Figure 4-8. Temperature Sensor Assembly Removal / Installation

B. Installation

(1) Coat threads of temperature sensor assembly (4) with teflon tape.

(2) Install temperature sensor assembly (4) in pressure vessel (5).

(3) Install flex guard tubing (3) on three wire harnesses (1).

(4) Connect three wire harnesses (1) to three terminals (2).

(5) Install back panel (Refer to para 4.5).

4.10 Pressure Vessel Water Level Sensor Removal / Installation

A. Removal

(1) Remove back panel (Refer to para 4.5).

(2) Remove wire tray rack and tray plate (Refer to para (4-17).

(3) Disconnect wire (1, Figure 4-9) from terminal (2).

(4) Remove nut (3) and terminal (2) from level sensor rod (4).

(5) Remove nut (5).

EQUIPMENT ALERT
Do not try to pull level sensor rod out of back side of pressure vessel. Doing so will damage level sensor rod.

(6) Push level sensor rod (4) thru fitting (6) and into pressure vessel (7) and remove level sensor rod.

(7) Remove spacer (8) from level sensor rod (4).

(8) Remove silicone tube (9) from fitting (6). Discard silicone tube (9) and crimp (10).

(9) If damaged, remove fitting (6) from pressure vessel (7).

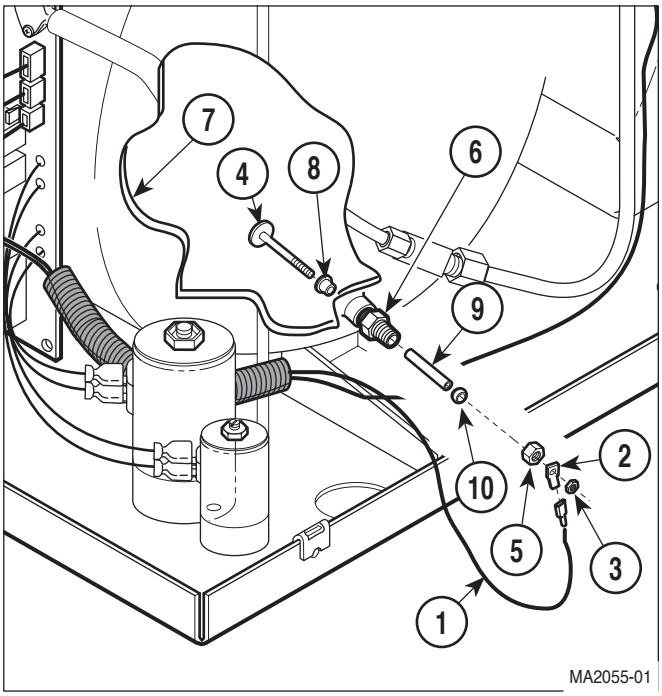

Figure 4-9. Pressure Vessel Water Level Sensor Removal / Installation

B. Installation

(1) If removed, coat fitting (6) with teflon tape and install fitting in pressure vessel (7).

(2) Install silicone tube (9) and spacer (8) on level sensor rod (4).

NOTE
The assembled level sensor rod must be installed from the inside of the pressure vessel.

(3) Install assembled level sensor rod (4) in fitting (6).

EQUIPMENT ALERT
The end of the silicone tube must extend past nut (5) after nut is installed. If it is not, the level sensor rod will not function properly because the terminal will be in contact with nut (5).

(4) Install and crimp crimp (10) on silicone tube (9).

(5) Install nut (5).

(6) Install terminal (2) on level sensor rod (4) and secure using nut (3).

(7) Connect wire (1) to terminal (2).

(8) Install wire tray rack and tray plate (Refer to para 4.17).

(9) Install back panel (Refer to para 4.5).

4.11 Vent Solenoid Removal / Installation

A. Removal

NOTE
Units prior to serial number CZ1110/OM1000 have a manifold assembly which secures the vent solenoid. Refer to the parts list to remove the vent solenoid on these sterilizers.

(1) Drain water from condensing tank.

(2) Remove back panel (Refer to para 4.5).

(3) Tag and disconnect two wires (1, Figure 4-10) from terminals (3).

(4) Tag and disconnect two wires (2) from terminals (4).

(5) Disconnect three tubes (5 thru 7) from elbows (8 thru 10).

(6) Remove two screws (11) from bottom of manifold assembly (12).

NOTE
Spacer (12A) is only on newer units.

(7) Remove manifold assembly (12) and spacer (12A) from base (13).

(8) Hold screw (1, Figure 4-11) and loosen nut (2). Turn terminals out of the way.

(9) Remove assembled vent solenoid (3) and elbow (4) from tee (5).

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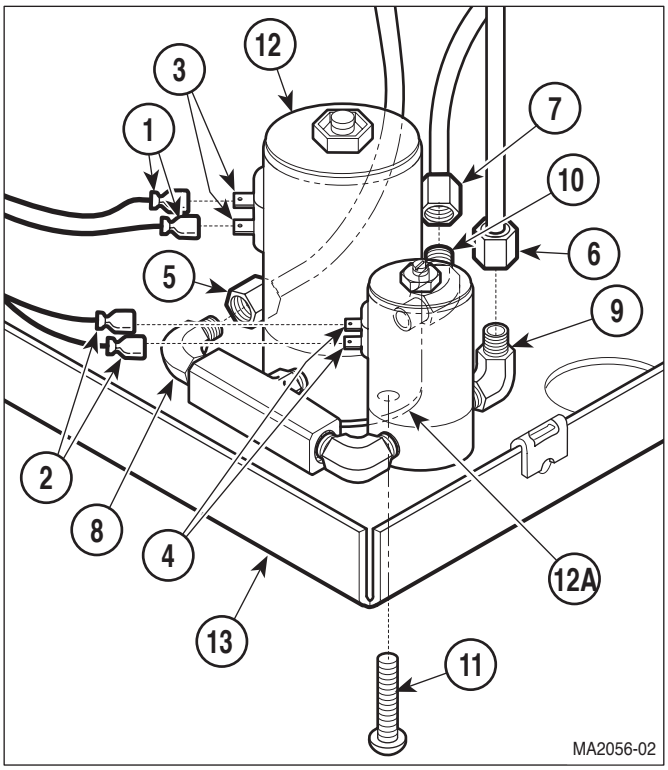

Figure 4-10. Vent Solenoid Removal / Installation

(10) Remove elbows (4 and 6) from vent solenoid (3).

B. Installation

NOTE
The end of elbow (6) which receives a tube does not get coated with teflon tape.

(1) Coat the threads of elbows (4 and 6, Figure 4-11) with teflon tape.

(2) Install elbows (4 and 6) on vent solenoid (3).

(3) Hold screw (1) and loosen nut (2). Turn terminals out of the way.

(4) Install assembled elbow (4) and vent solenoid (3) on tee (5).

(5) Turn terminals of vent solenoid (3) so wires will connect easily to vent solenoid.

(6) Hold screw (1) and tighten nut (2).

EQUIPMENT ALERT
When installing the vent solenoid, the side of the solenoid marked IN needs to be connected to the pressure line. Reversing vent solenoid will cause system failure.

(7) Install spacer (12A, Figure 4-10) and manifold assembly (12) on base (13) and secure using two screws (11).

(8) Connect three tubes (5 thru 7) to elbows (8 thru 10).

(9) Connect two wires (2) to terminals (4).

(10) Connect two wires (1) to terminals (3).

(11) Install back panel (Refer to para 4.5).

(12) Refill condensing tank with distilled water.

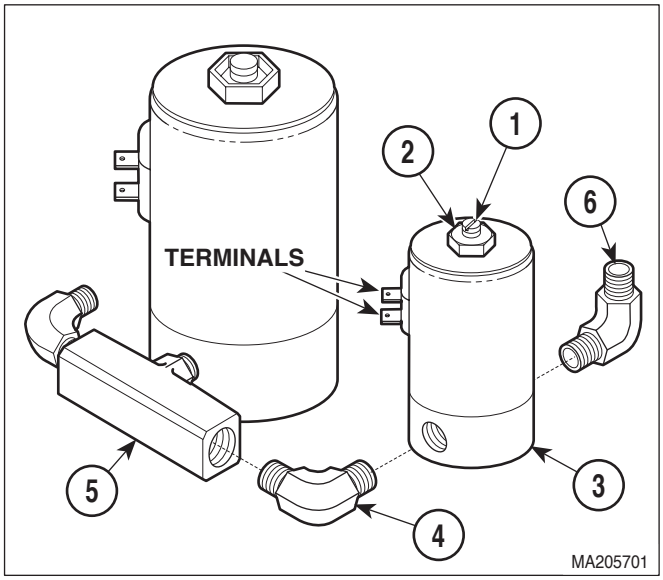

Figure 4-11. Vent Solenoid Fittings Removal / Installation

4.12 Fill Solenoid Removal / Installation

A. Removal

NOTE
Units prior to serial number CZ1110/OM1000 have a manifold assembly which secures the fill solenoid. Refer to the parts list to remove the fill solenoid on these sterilizers.

(1) Drain water from condensing tank.

(2) Remove back panel (Refer to para 4.5).

(3) Tag and disconnect two wires (1, Figure 4-12) from terminals (3).

(4) Tag and disconnect two wires (2) from terminals (4).

(5) Disconnect three tubes (5 thru 7) from elbows (8 thru 10).

(6) Remove two screws (11) from bottom of manifold assembly (12).

NOTE
Spacer (12A) is only on newer units.

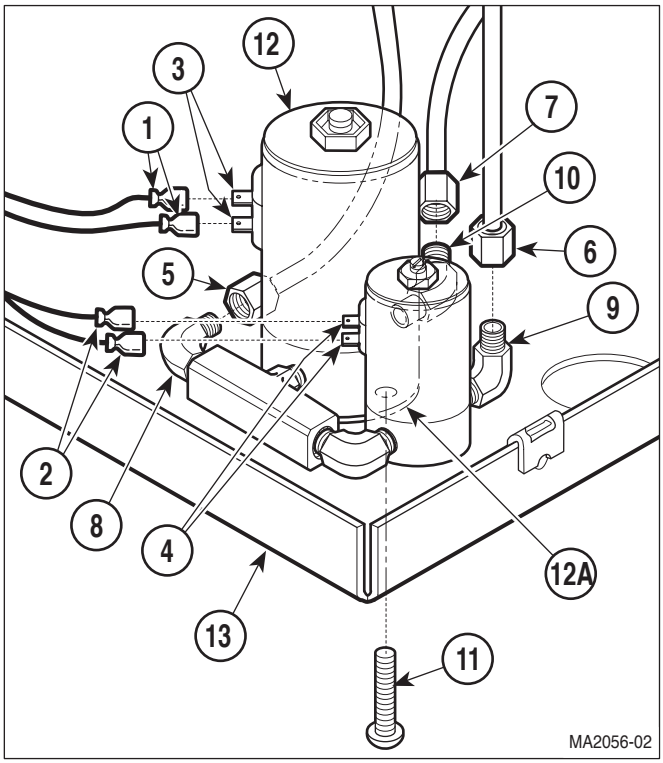

Figure 4-12. Fill Solenoid Removal / Installation

(7) Remove manifold assembly (12) and spacer (12A) from base (13).

(8) Hold screw (1, Figure 4-13) and loosen nut (2). Turn terminals out of the way.

(9) Remove assembled vent solenoid (3) and elbow (4) from tee (5).

(10) Remove elbow (6) and tee (5) from fill solenoid (7).

(11) Remove elbow (8) from fill solenoid (7).

B. Installation

(1) Coat threads of tee (5, Figure 4-13) and elbows (6 and 8) with teflon tape.

(2) Install elbow (8) on fill solenoid (7).

(3) Install elbow (6) and tee (5) on fill solenoid (7).

(4) Loosen nut (9). Turn terminals of fill solenoid (7) so wires will connect easily to fill solenoid. Tighten nut (9).

(5) Coat threads of elbow (4) with teflon tape.

(6) Hold screw (1) and loosen nut (2). Turn terminals out of the way.

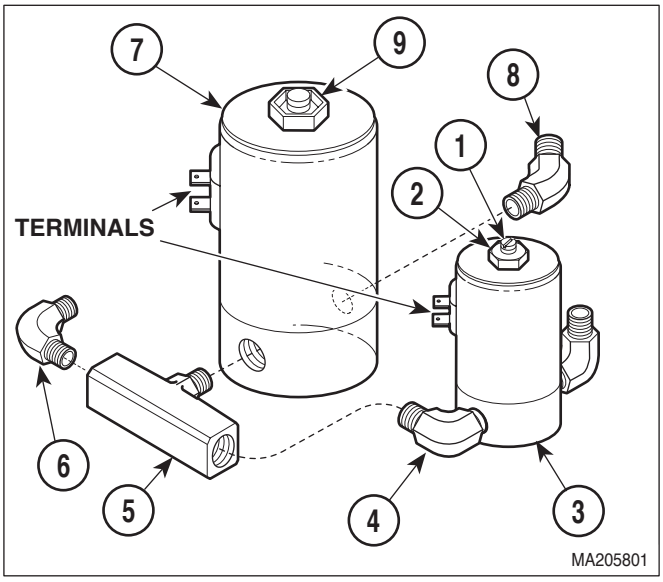

Figure 4-13. Fill Solenoid Fittings Removal / Installation

(7) Install assembled elbow (4) and vent solenoid (3) on tee (5).

(8) Turn terminals of vent solenoid (3) so wires will connect easily to vent solenoid.

(9) Hold screw (1) and tighten nut (2).

EQUIPMENT ALERT
When installing the vent solenoid and the fill solenoid, the side of the solenoids marked "IN" need to be connected to the pressure lines. Reversing solenoids will cause system failure.

(10) Install spacer (12A, Figure 4-12) and manifold assembly (12) on base (13) and secure using two screws (11).

(11) Connect three tubes (5 thru 7) to elbows (8 thru 10).

(12) Connect two wires (2) to terminals (4).

(13) Connect two wires (1) to terminals (3).

(14) Install back panel (Refer to para 4.5).

(15) Refill condensing tank with distilled water.

4.13 Control PC Board Removal / Installation

A. Removal

(1) Remove right hand side panel (Refer to para 4.3).

(2) Disconnect pressure tube (1, Figure 4-14) from pressure sensor (2).

NOTE
Units with old style control PC board with EPROM version N or after ***or*** new style control PC board will only have two wire harnesses (3) to disconnect instead of three.

(3) Disconnect two / three wire harnesses (3) from two / three connectors (4).

(4) Tag and disconnect two wires (5) from terminals (6).

(5) Tag and disconnect two wires (7) from terminals (8).

(6) Disconnect ribbon connector (9) from connector (10).

(7) Tag and disconnect neutral wire (11) from terminal (12).

(8) Tag and disconnect hot wire (13) from terminal (14).

(9) Disconnect printer cable (15) from connector (16).

(10) Disconnect door switch harness (17) from connector (18).

(11) Tag and disconnect two wires (19) from pulse solenoid terminals (20).

(12) Disconnect heater element wire (21) from connector (22).

NOTE
Positions of locknuts (1) and screws (2) are reversed on newer units.

(13) Remove two locknuts (1, Figure 4-15), screws (2), and control PC board (3) and control PC board bracket (4) as an assembly from base (5).

NOTE
Units prior to serial number CZ1110/OM1000 have the ground wire attached to the control PC board bracket. When nut (6), starwasher (7), and screw (8) are removed, ground wire will also be removed.

(14) Remove nut (6), starwasher (7), and screw (8) from control PC board bracket (4).

(15) Turn three standoff screws (9) 1/4 turn in the counter-clockwise direction and remove control PC board (3) and insulator (10) from control PC board bracket (4).

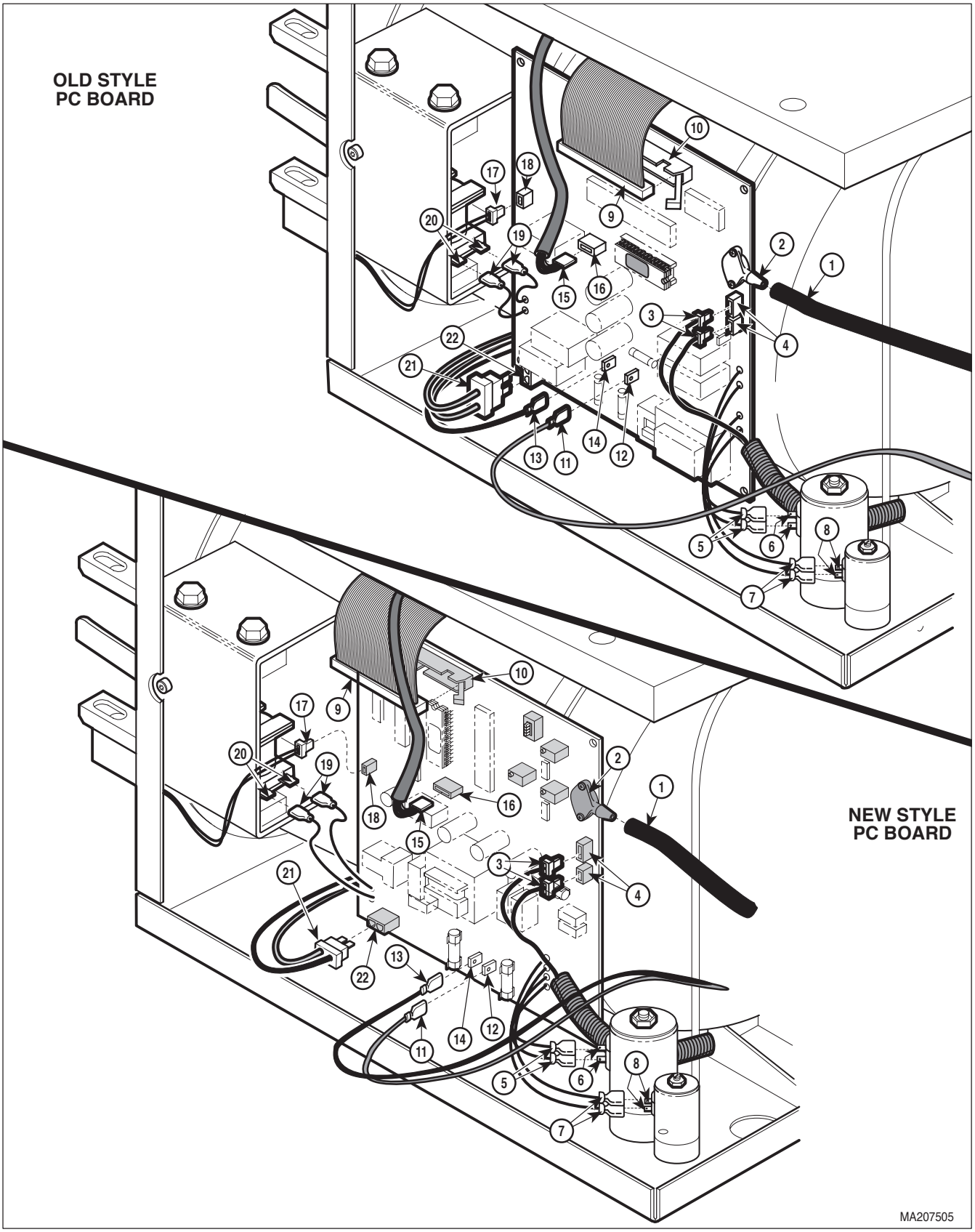

Figure 4-14. Control PC Board Connections

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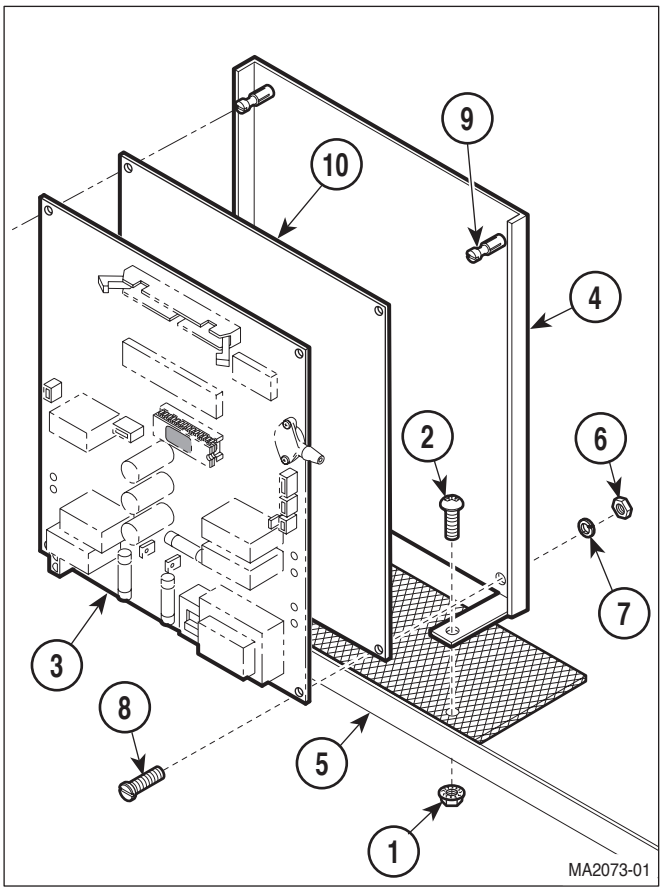

Figure 4-15. Control PC Board Removal / Installation

B. Installation

(1) Install insulator (10, Figure 4-15) and control PC board (3) on control PC board bracket (4) and secure by turning three standoff screws (9) 1/4 turn in the clockwise direction.

NOTE
Units prior to serial number CZ1110/OM1000 have the ground wire attached to the control PC board bracket. When nut (6), starwasher (7), and screw (8) are removed, ground wire will also be removed. Make sure ground wire is re-installed upon installation.

(2) Install screw (8), starwasher (7), and nut (6) on control PC board bracket (4).

NOTE
Positions of locknuts (1) and screws (2) are reversed on newer units.

(3) Install control PC board (3) and control PC board bracket (4) as an assembly on base (5) and secure using two screws (2) and locknuts (1).

(4) Connect heater element wire (21, Figure 4-14) to connector (22).

(5) Connect two wires (19) on pulse solenoid terminals (20).

(6) Connect wire harness (17) to connector (18).

(7) Connect printer cable (15) to connector (16).

(8) Connect hot wire (13) to terminal (14).

(9) Connect neutral wire (11) to terminal (12).

(10) Connect ribbon connector (9) to connector (10).

(11) Connect two wires (7) to terminals (8).

(12) Connect two wires (5) to terminals (6).

NOTE
Units with old style control PC board with EPROM version N or after ***or*** new style control PC board will only have two wire harnesses (3) to connect instead of three.

(13) Connect two / three wire harnesses (3) to two / three connectors (4).

(14) Connect pressure tube (1) to pressure sensor (2).

(15) Install right hand side panel (Refer to para 4.3).

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4.14 Door Switch Removal / Installation

A. Removal

NOTE
Units prior to serial number CZ1110/OM1000 have a different switch weldment. Since this procedure tampers with the pressure vessel integrity, it should not be attempted until a Midmark service representative has been contacted.

(1) Open sterilizer door.

(2) Remove right hand side panel (Refer to para 4.3).

(3) Disconnect wire harness (1, Figure 4-16) from connector (2).

(4) Using 3/32 in. punch, remove two roll pins (3) from door switch bracket (4) (Refer to Table 1-2 for special tool).

(5) Remove door switch (5) from door switch bracket (4).

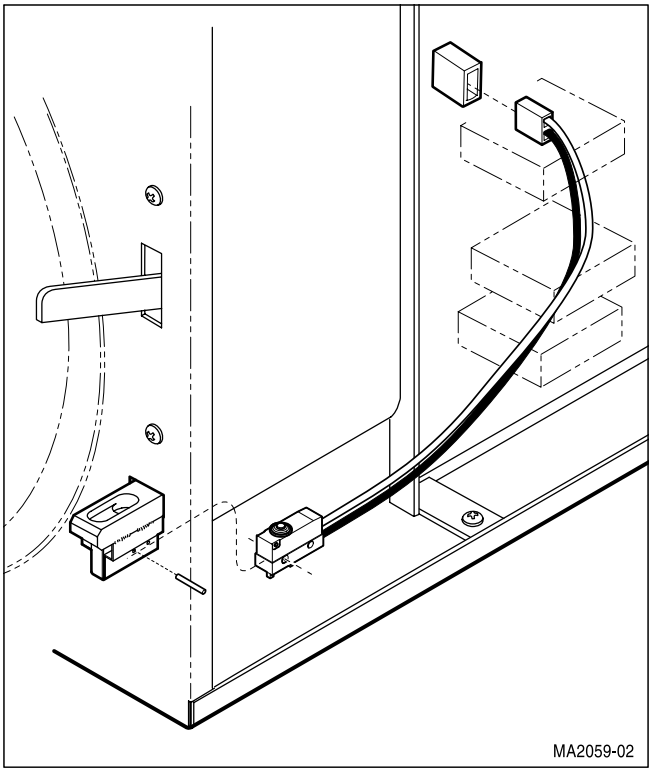

Figure 4-16. Door Switch Removal / Installation

B. Installation

(1) Position door switch (5) in door switch bracket (4).

(2) Using 3/32 in. punch, install two roll pins (3) in door switch bracket (4) (Refer to Table 1-2 for special tool).

(3) Connect wire harness (1) to connector (2).

(4) Install right hand side panel (Refer to para 4.3).

(5) Close sterilizer door.

4.15 Pulse Solenoid Removal / Installation

A. Removal

(1) Remove control PC board (Refer to para 4.13).

(2) Remove two screws (1, Figure 4-17) from pulse solenoid (2).

(3) Remove nut (3) and shoulder screw (4), and then remove pulse solenoid (2) and latch lever (5) as an assembly from pressure vessel bracket (6).

(4) Using 3/32 in. punch, remove roll pin (7) and latch lever (5) from plunger of pulse solenoid (2) (Refer to Table 1-2 for special tool).

B. Installation

(1) Using 3/32 in. punch, install latch lever (5) on plunger of pulse solenoid (2) and secure using roll pin (7) (Refer to Table 1-2 for special tool).

(2) Coat shoulder screw (4) with Loctite 271.

(3) Install latch lever (5) and pulse solenoid (2) as an assembly on pressure vessel bracket (6). Secure using shoulder screw (4) and nut (3).

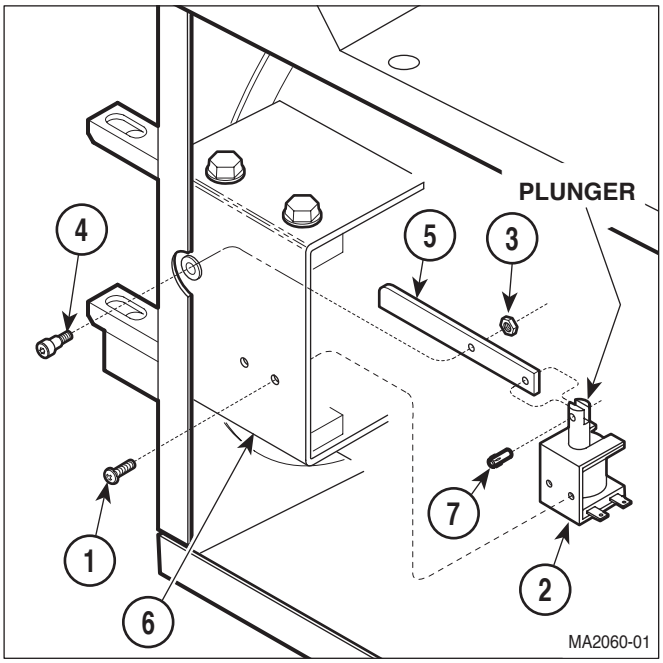

Figure 4-17. Pulse Solenoid Removal / Installation

NOTE
The holes for the two screws (1) are oblong. Install screws at the top of each hole first, then adjust downward as necessary if door will not open.

(4) Position pulse solenoid (2) on pressure vessel bracket (6) and secure in position using two screws (1).

(5) Install control PC board (Refer to para 4.13).

4.16 Thermostat Removal / Installation

A. Removal

(1) Drain water from condensing tank.

(2) Remove base inspection cover (Refer to para 4.6).

(3) Tag and disconnect wires (1 and 2, Figure 4-18) from terminals (3 and 4).

(4) Loosen two nuts (5) and pull top of bracket (6) approximately 1 in. from pressure vessel (7).

(5) Rotate terminals (3 and 4) to a vertical position and slide thermostat (8) upward and out of bracket (6).

B. Installation

(1) Slide thermostat (8) into bracket (6) and rotate terminals (3 and 4) to a horizontal position.

(2) Position bracket (6) against pressure vessel (7) and secure by tightening two nuts (5).

(3) Connect wires (1 and 2) to terminals (3 and 4).

(4) Install base inspection cover (Refer to para 4.6).

(5) Refill condensing tank with distilled water.

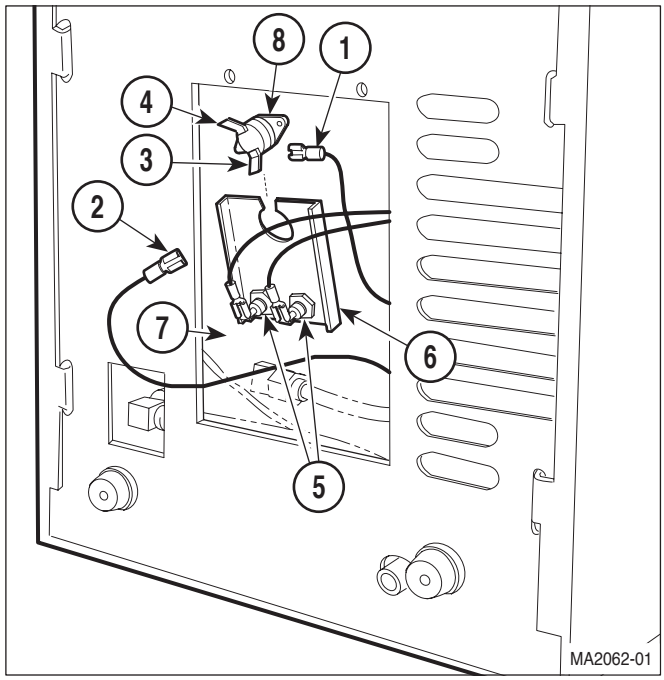

Figure 4-18. Thermostat Removal / Installation

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4.17 Wire Tray Rack and Tray Plate Removal / Installation

A. Removal

(1) Open sterilizer door.

(2) Remove trays.

(3) Pull wire tray rack (1, Figure 4-19) and tray plate (2) from pressure vessel (3).

B. Installation

(1) Position two rear posts of wire tray rack (1) in rack holes of tray plate (2).

(2) Hold front end of wire tray rack (1) at approximately a 30° angle from tray plate (2).

NOTE
If wire tray rack is not raised, installation is very difficult.

(3) Insert rear end of wire tray rack (1) and tray plate (2) as an assembly in pressure vessel (3). Push wire tray rack and tray plate as far as they will go.

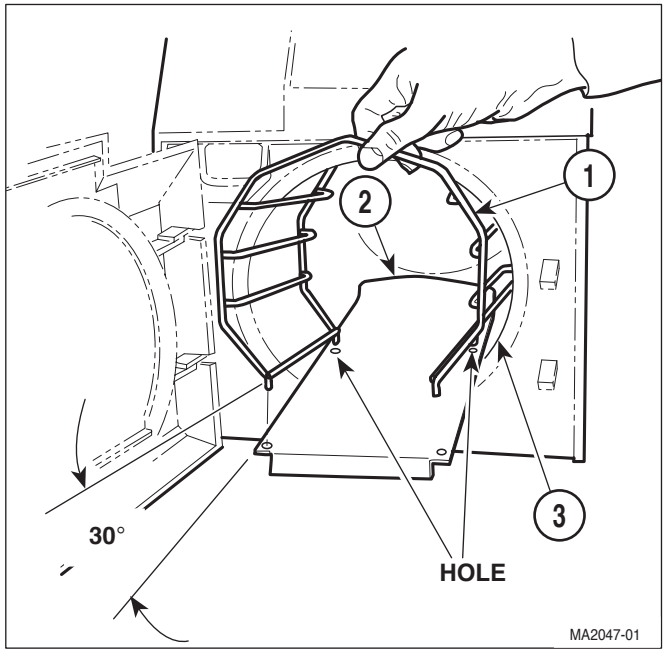

Figure 4-19. Wire Tray Rack and Tray Plate Removal / Installation

(4) Install trays.

(5) Close sterilizer door.

4.18 Heating Element and Gasket Removal / Installation

A. Removal

(1) Drain water from condensing tank.

(2) Remove base inspection cover (Refer to para 4.6).

(3) Tag and disconnect two wires (1, Figure 4-20) from terminals (2).

(4) Remove two nuts (3), lock washers (4), and brass washers (5).

EQUIPMENT ALERT
Over bending may result in broken or cracked terminals.

NOTE
The following step is necessary to remove the heating element from the pressure vessel.

(5) Straighten terminals (2) slightly from the present 90° position to approximately a 10° straighter position.

(6) Remove bracket (6) from pressure vessel (7) and position out-of-way.

(7) Turn sterilizer upright.

(8) Remove wire tray rack and tray plate (Refer to para 4.17).

(9) Remove heating element (8) and spacer assembly (9) from pressure vessel (7).

NOTE
Perform the following step only if the heating element is *not* being replaced, but damaged gaskets *are*.

(10) Remove two gaskets (10) from heating element (8).

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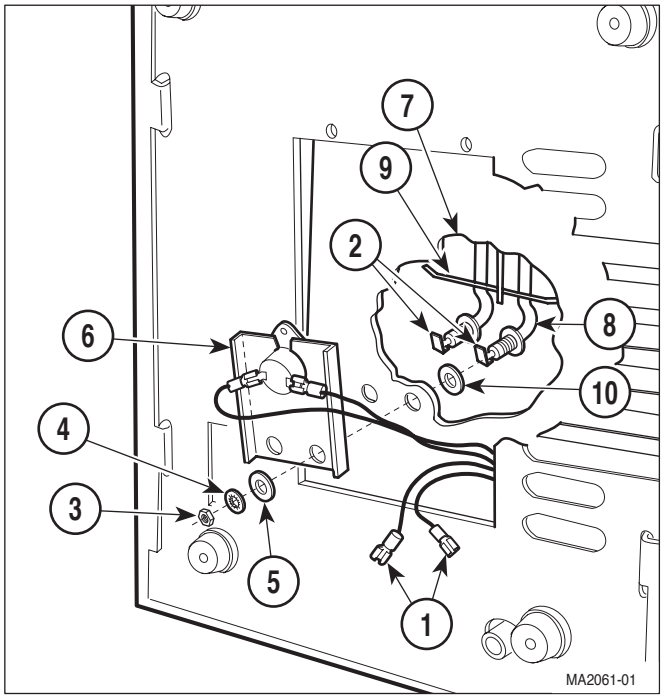

Figure 4-20. Heating Element and Gasket Removal / Installation

B. Installation

(1) Install two gaskets (10) on heating element (8).

EQUIPMENT ALERT
Over bending may result in broken or cracked terminals.

NOTE
The following step is necessary to install the heating element in the pressure vessel.

(2) Straighten terminals (2) slightly from the present 90° position to approximately a 10° straighter position.

(3) Install spacer assembly (9) and heating element (8) in pressure vessel (7).

(4) Turn sterilizer on its back.

(5) Position bracket (6) on pressure vessel (7).

EQUIPMENT ALERT
Hold heating element firmly in position while tightening nuts. Otherwise, damage to heating element or improper positioning of heating element may result. Also, spacer assembly must remain above gaskets. If spacer assembly is installed under gasket, leaking will result.

(6) Install two brass washers (5), lock washers (4), and nuts (3) on heating element (8).

EQUIPMENT ALERT
Over bending may result in broken or cracked terminals.

(7) Bend terminals (2) slightly, back to their original 90° position.

(8) Connect two wires (1) to terminals (2).

(9) Turn sterilizer upright.

(10) Install wire tray rack and tray plate (Refer to para 4.17).

(11) Install base inspection cover (Refer to para 4.6).

(12) Refill condensing tank with distilled water.

4.19 Filter Removal / Installation

A. Removal

(1) Remove wire tray rack and tray plate (Refer to para 4.17).

NOTE
Turn filter in a circular motion while pulling upward to remove.

(2) Using vise grips, remove filter (1, Figure 4-21) from pressure vessel (2).

B. Installation

(1) Position filter (1) in pressure vessel (2).

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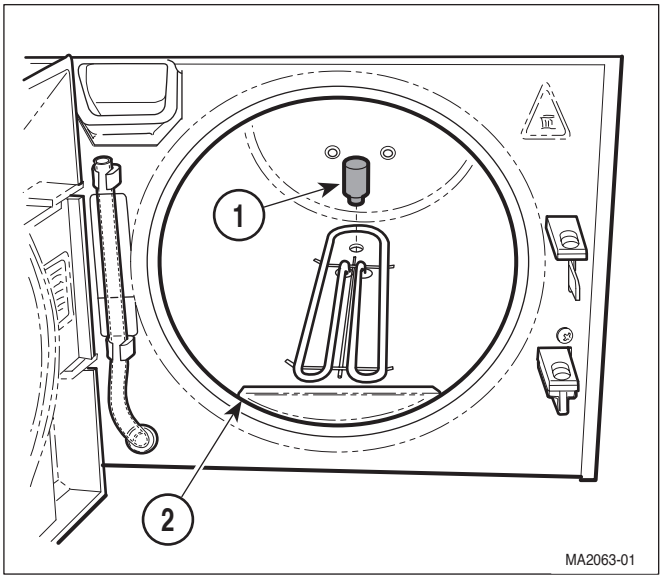

Figure 4-21. Filter Removal / Installation

(2) Using rubber hammer, tap filter (1) lightly into pressure vessel (2).

(3) Install wire tray rack and tray plate (Refer to para 4.17).

4.20 Door Gaskets Removal / Installation

A. Removal

(1) Open sterilizer door.

(2) Remove dam gasket (1, Figure 4-22) and door gasket (2) from door (3).

B. Installation

(1) Install door gasket (2) in groove in door (3).

(2) Install dam gasket (1) by inserting bottom edge of dam gasket in slot of door gasket (2) and tucking top edge of dam gasket under flap of door (3).

(3) Close sterilizer door.

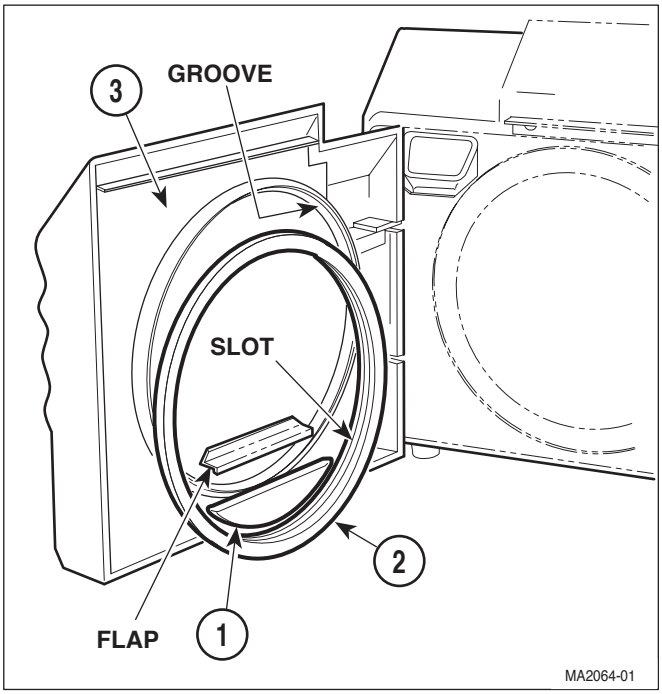

Figure 4-22. Door Gaskets Removal / Installation

4.21 Display PC Board Removal / Installation

A. Removal

(1) Remove top cover (Refer to para 4.2).

(2) Remove six screws (1, Figure 4-23) and display PC board (2) from top cover (3).

(3) If damaged, remove gasket (4) from top cover (3).

B. Installation

(1) If removed, install new gasket (4) by peeling protective backing off of gasket and pressing gasket firmly into position on top cover (3).

(2) Install display PC board (2) on top cover (3) and secure using six screws (1).

(3) Install top cover (Refer to para 4.2).

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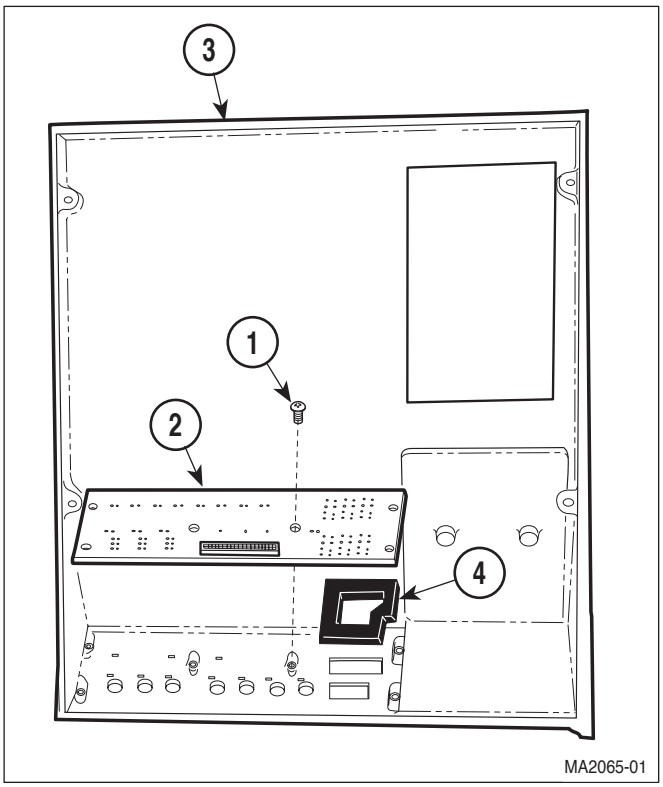

Figure 4-23. Display PC Board Removal / Installation

4.22 Condensing Tank Assembly Removal / Installation

A. Removal

(1) Drain water from condensing tank.

(2) Turn sterilizer onto its back.

(3) Disconnect fill tube (1, Figure 4-24) from elbow (2).

(4) Turn sterilizer upright.

(5) Remove top cover (Refer to para 4.2).

(6) Remove back panel (Refer to para 4.5).

(7) Remove bellows assembly (Refer to para 4.7).

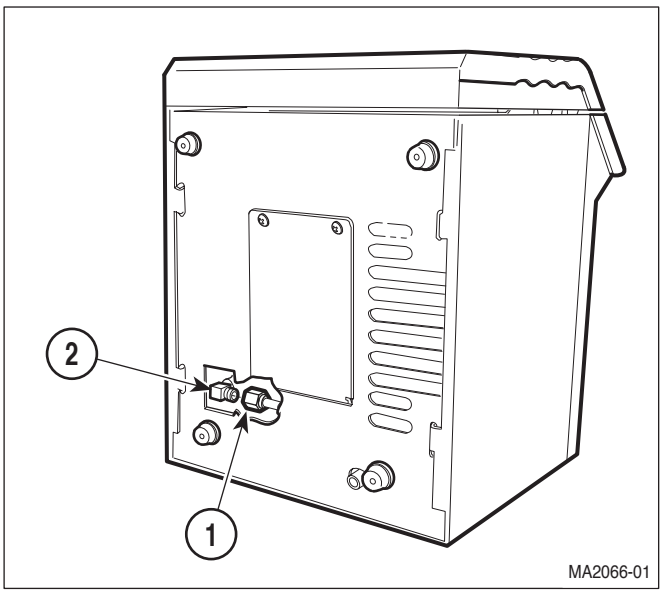

Figure 4-24. Condensing Tank Assembly Fill Tube Disconnection / Connection

(8) Loosen hose clamp (1, Figure 4-25) and remove sight/drain tube (2) and hose clamp from condensing tank assembly (3).

NOTE
The following step applies only to units with old style control PC board with EPROM version M or before. Units with old style control PC board with EPROM version N or after ***or*** new style control PC board do not have wire (4) and terminal (5).

(9) Disconnect wire (4) from terminal (5).

(10) Disconnect vent tube (6) from fitting (7).

NOTE
Positions of locknut (9) and screws (8) are reversed on newer units.

(11) Remove screw (8), locknut (9), and condensing tank assembly (3) from base (10).

B. Installation

NOTE
Fill tube must be lined up with fitting at this time because it will be impossible to line up after screw and locknut are installed.

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(1) Position condensing tank assembly (3, Figure 4-25) on base (10) and secure using screw (8) and locknut (9).

(2) Connect vent tube (6) to fitting (7).

NOTE
The following step applies only to units with old style control PC board with EPROM version M or before. Units with old style control PC board with EPROM version N or after ***or*** new style control PC board do not have wire (4) and terminal (5).

(3) Connect wire (4) to terminal (5).

(4) Install hose clamp (1) and sight/drain tube (2) on condensing tank assembly (3). Tighten hose clamp.

(5) Install bellows assembly (Refer to para 4.7).

(6) Install back panel (Refer to para 4.5).

(7) Install top cover (Refer to para 4.2).

(8) Turn sterilizer onto its side.

(9) Connect fill tube (1, Figure 4-24) to elbow (2).

(10) Turn sterilizer upright.

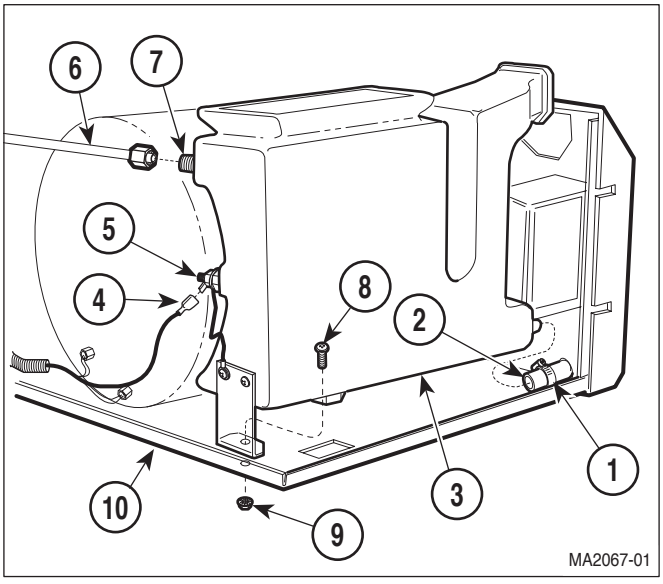

Figure 4-25. Condensing Tank Assembly Removal / Installation

(11) Refill condensing tank with distilled water.

4.23 Pressure Relief Valve Removal / Installation

A. Removal

(1) Remove condensing tank assembly (Refer to para 4.22).

(2) Disconnect tube (1, Figure 4-26) from elbow (2).

(3) Remove elbow (2) from pressure relief valve (3).

(4) Remove pressure relief valve (3) from pressure vessel (4).

B. Installation

(1) Coat threads of pressure relief valve (3) and elbow (2) with teflon tape.

(2) Install pressure relief valve (3) in pressure vessel (4).

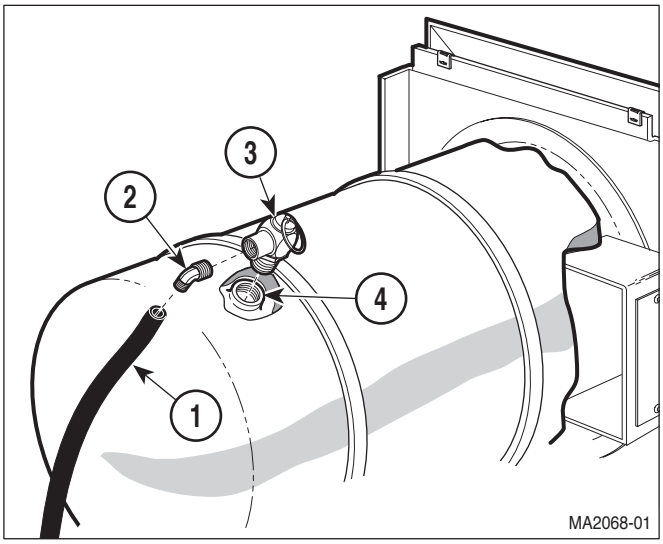

Figure 4-26. Pressure Relief Valve Removal / Installation

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(3) Install elbow (2) on pressure relief valve (3).

(4) Connect tube (1) to elbow (2).

(5) Install condensing tank assembly (Refer to para 4.22).

4.24 Pressure / Temperature Potentiometers Adjustments

EQUIPMENT ALERT
The pressure zero, pressure range, and temperature potentiometers cannot be adjusted separately. If one potentiometer needs adjusted, then the entire potentiometer adjustment procedure must be performed, and it must be performed in the proper sequence as follows:

(1) Remove right hand side panel.

(2) Open sterilizer door.

DANGER
The following steps require the sterilizer to be plugged in to power while the adjustment is being performed. Do not touch any components except for the adjusting screw of the potentiometer. Failure to comply with these instructions could result in an electrical shock, which could result in severe personal injury or death.

NOTE
After the following step is performed, the display PC board lamps will individually illuminate and then extinguish one at a time in a left to right sequence. When all the lamps have illuminated and extinguished, proceed with step 4.

(3) Press and hold down the LIQUIDS and PACKS buttons simultaneously while connecting the power cord to the sterilizer (See Figure 4-27). Release the LIQUIDS and PACKS buttons.

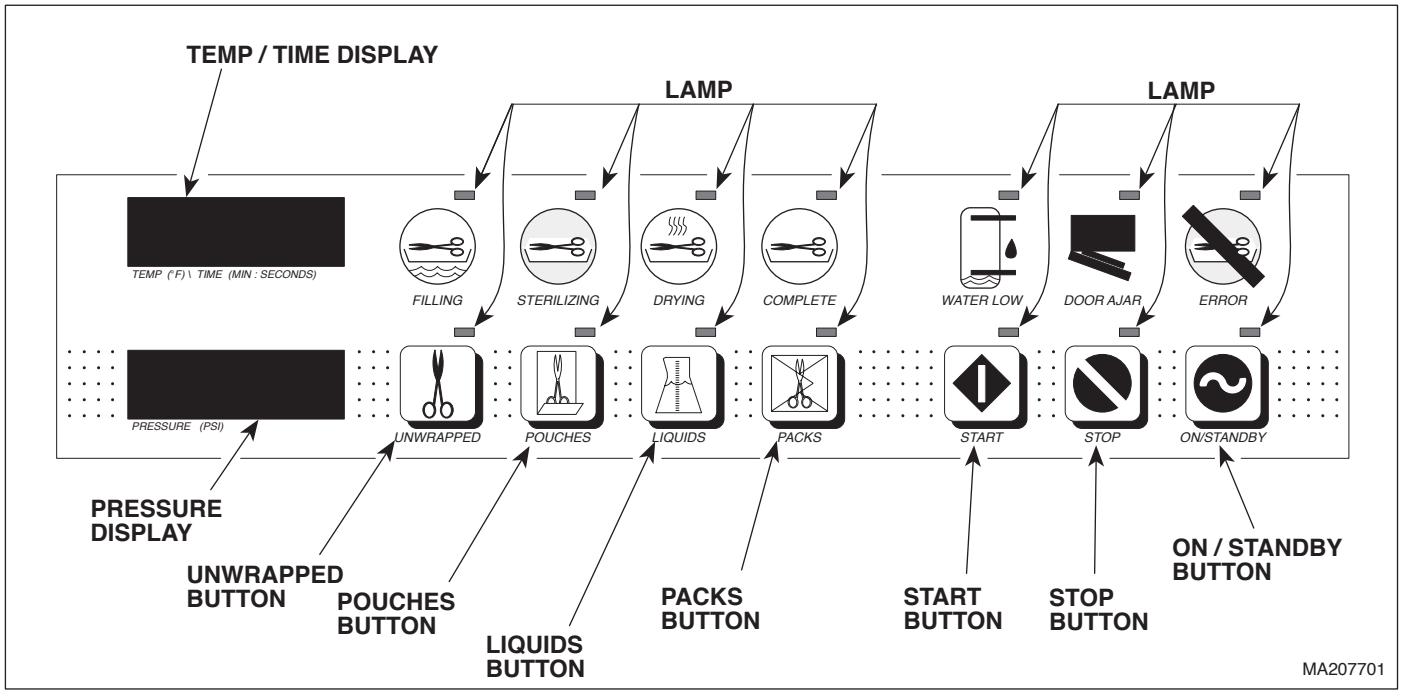

Figure 4-27. Display PC Board Lamp / Display / Button Check

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NOTE
When each button is pressed, its corresponding lamp will illuminate and stay illuminated. Also, after the following step, the PRESSURE (PSI) display will display the pressure that the control PC board is reading and the TEMP (°F) / TIME (MIN: SECONDS) display will display the temperature that the control PC board is reading. When each button has been pushed, proceed with step 5.

(4) Press and release the UNWRAPPED, POUCHES, LIQUIDS, PACKS, START, STOP, AND ON/STANDBY buttons one at a time and in this order.

(5) Turn adjusting screw of pressure zero potentiometer (1, Figure 4-28) in the counter-clockwise direction until the PRESSURE (PSI) display reads 0.0 psi (0.0 kPa).

(6) Turn adjusting screw of pressure zero potentiometer (1) in the clockwise direction until the PRESSURE (PSI) display reads 0.1 psi (1 kPa).

CAUTION
The multimeter leads must be connected exactly as shown in the illustration. Connecting a lead to the wrong side of the resistor or wrong pin of the chip will result in an incorrect adjustment.

(7) Set the multimeter to read VDC at least the 5 Volts range. Connect the red lead of a multimeter to Test Point (A) and the black lead of a multimeter to Test Point (B).

NOTE
In the following step, if the digital multimeter being used has only three digits, adjust to a reading of 2.54 VDC and then adjust and set to where the reading just changes to 2.55 VDC.

(8) The multimeter should read 2.550 VDC ±0.001 VDC. If multimeter reading is not 2.550 VDC ±0.001 VDC, adjust the adjusting screw of the temperature potentiometer (3) in a clockwise direction to lower the voltage setting or a counter-clockwise direction to raise the voltage setting until the multimeter reading is 2.550 VDC ±0.001 VDC.

(9) Close the sterilizer door.

(10) Connect Pressure Gauge Test Harness to sterilizer (See Figure 4-29) (Refer to the sterilizer Service and Parts Manual for this special tool).

(11) Press the START button to start a test/calibration cycle and wait until the temperature on the TEMP (°F) / TIME (MIN: SECONDS) display reaches 272 - 273°F (133-134°C) (See Figure 4-27).

NOTE
Turning the adjusting screw of the pressure range potentiometer in the clockwise direction raises the sterilizer pressure reading while turning the adjusting screw in the counter-clockwise direction lowers the sterilizer pressure reading.

(12) Turn the adjusting screw of the pressure range potentiometer (2, Figure 4-28) in the clockwise or counter-clockwise direction until the reading on the PRESSURE (PSI) display matches the reading of the Pressure Gauge Test Harness within a tolerance of ±0.5 psi (3.5 kPa).

(13) Recheck the multimeter reading. It should still read 2.550 VDC ±0.001 VDC.

(14) Press the STOP button to end the test/calibration cycle and allow the sterilizer to vent and open its door (See Figure 4-27).

(15) Disconnect the leads of the multimeter from Test Points (A and B, Figure 4-28).

(16) Disconnect the power cord from the sterilizer and then repeat steps 3 and 4 of this procedure. The reading should read 0.1 psi (1 kPa) with the sterilizer door open. If not, repeat steps 5 and 6 of this procedure.

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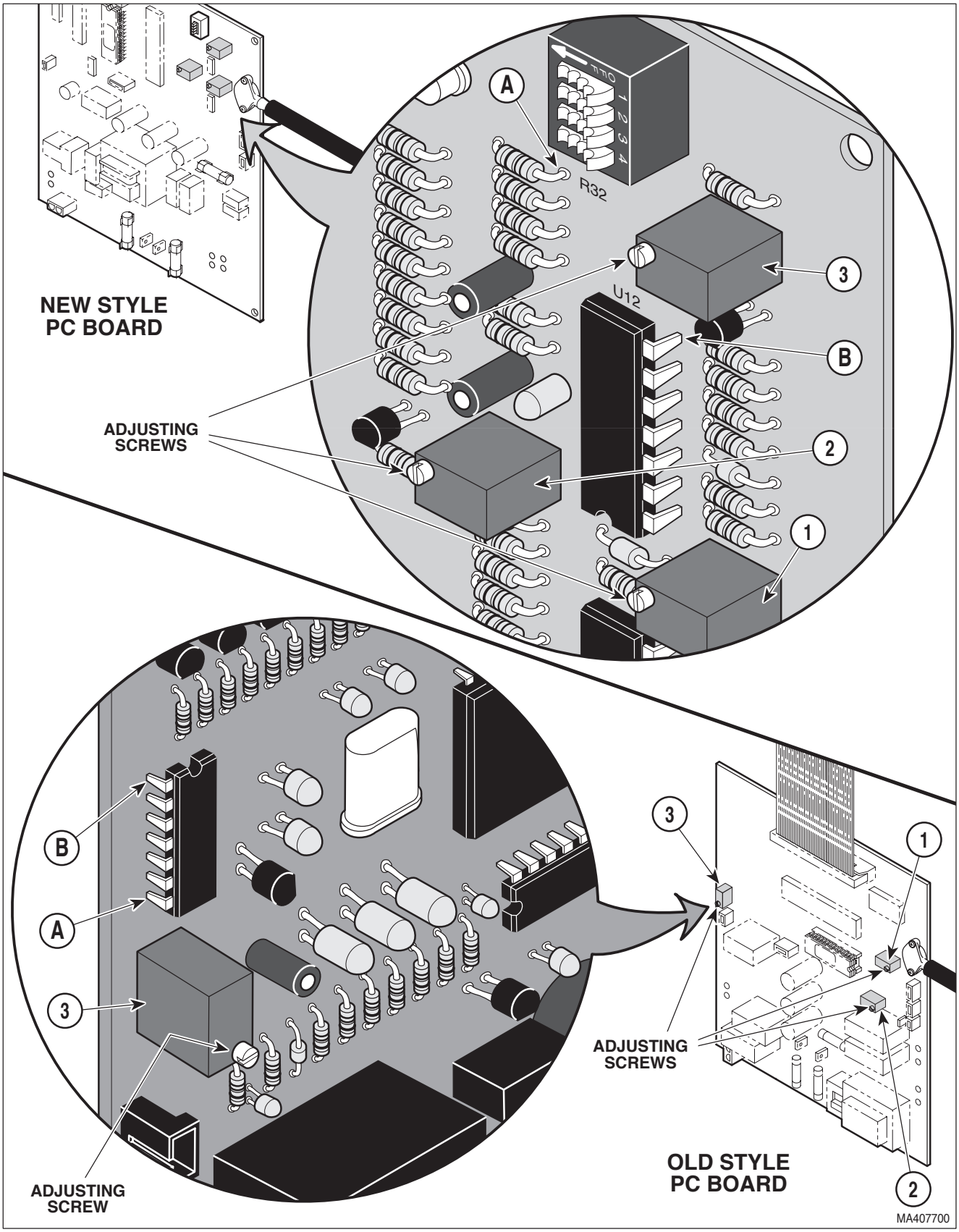

Figure 4-28. Potentiometer Adjustments

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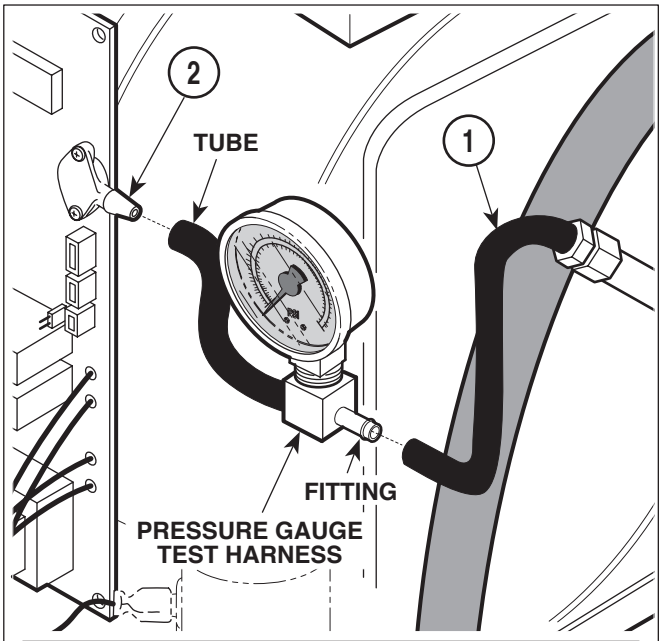

To connect Pressure Gauge Test Harness to sterilizer:

1. **Disconnect tube (1) from pressure sensor (2).**
2. **Connect tube of Pressure Guage Test Harness to pressure sensor (2).**
3. **Connect tube (1) to fitting of Pressure Guage Test Harness.**

To disconnect Pressure Gauge Test Harness from sterilizer:

1. **Disconnect tube (1) from fitting of Pressure Guage Test Harness.**
2. **Disconnect tube of Pressure Guage Test Harness from pressure sensor (2).**
3. **Connect tube (1) to pressure sensor (2).**

MA2070-01

Figure 4-29. Connecting / Disconnecting Pressure Gauge Test Harness

(17) Disconnect the power cord from sterilizer.

(18) Disconnect Pressure Gauge Test Harness from sterilizer (See Figure 4-29).

(19) Install right hand side panel.

4.25 Display PC Board Lamp / Display / Button Check

(1) Disconnect power cord from the sterilizer.

(2) Press and hold down the LIQUIDS and PACKS buttons simultaneously, while connecting the power cord to the sterilizer (See Figure 4-30). Release the LIQUIDS and PACKS buttons.

(3) Observe the display PC board lamps. In a left to right sequence, each lamp on the display PC board should individually illuminate and then extinguish. If all the display PC board lamps do not illuminate and then extinguish, replace display PC board (Refer to para 4.21).

(4) Press and release the UNWRAPPED, POUCHES, LIQUIDS, PACKS, START, STOP, AND ON/STANDBY buttons one at a time and in this order.

(5) Observe the lamps that correspond with each button. If all lamps do not illuminate and stay illuminated when their corresponding button is pressed, replace the display PC board (Refer to para 4.21).

(6) Observe the pressure and temperature/time displays. If the pressure and temperature/time displays do not display pressure and temperature readings, replace the display PC board (Refer to para 4.21).

(7) Disconnect power cord from the sterilizer.

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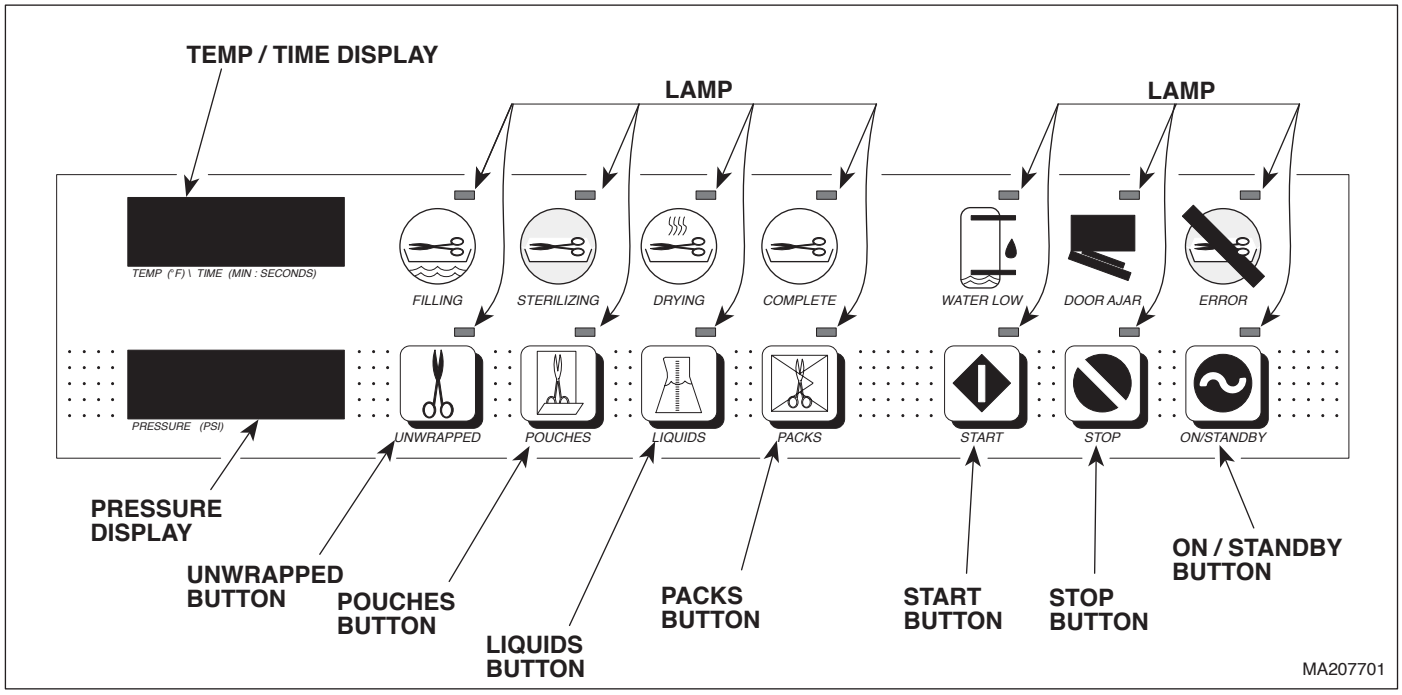

Figure 4-30. Display PC Board Lamp / Display / Button Check

4.26 Pressure Relief Valve Check

(1) Remove the top inspection cover (1, Figure 4-31).

WARNING
Refer to the operator manual for complete instructions on operating the sterilizer. Failure to do so could result in severe personal injury.

(2) Select the UNWRAPPED cycle and start the cycle.

DANGER
Pressure Relief Valve will be hot. Use a screwdriver or rod to pull the wire ring. Do not pull the wire ring with bare hands or burns will result. Steam will be vented from under the rear of the sterilizer. To keep from being burned, place a steam barrier (a rolled up towel) around the bottom of the sterilizer.

(3) When the "heat up" portion of the cycle is complete and the elapsed time is being counted down on the display PC board, pull on wire ring of pressure relief valve (2) with a screwdriver.

(4) If excessive force was required to open pressure relief valve (2), replace the pressure relief valve (Refer to para 4.23).

NOTE
If the pressure relief valve does not close completely when the wire ring is released, pull the wire ring again and release it quickly so the valve snaps back into position. Do this until the valve seats properly.

(5) Release wire ring of pressure relief valve (2). The steam should vent out of the pressure relief valve until the wire ring is released. When the wire ring is released, the valve should seat, stopping the release of steam.

(6) If the pressure relief valve (2) will not re-seat properly, replace the pressure relief valve (Refer to para 4.23).

(7) Install top inspection cover (1).

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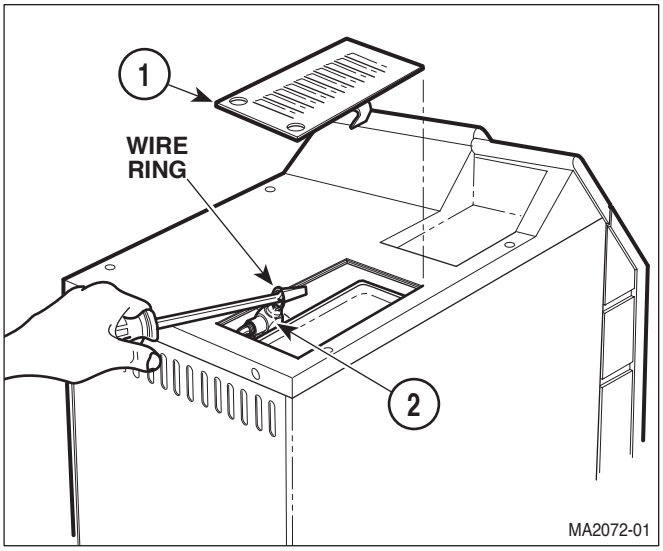

Figure 4-31. Pressure Relief Valve Check

4.27 Dry Cycle Dip Switches Adjustment

(1) Unplug power cord from outlet receptacle.

(2) Remove right hand side panel (Refer to para 4.3).

NOTE
There are four repeat interval dip switch settings; setting #1, setting #2, setting #3, and setting #4. The unit comes factory set at the repeat interval setting #3. Setting #1 is shortest repeat interval, setting #2 is longer, setting #3 is longer yet, and setting #4 is the longest repeat interval.

This procedure only applies to units with a new style control PC board; units with serial numbers: CZ-2457, DA-1005, DB-1150, DX-1970, DY-1139, FD-1000, and OM-9449 thru Present.

(3) If unit has has been overheating during the drying cycle and activating the overheat thermostat, determine the current repeat interval dip switch settings for the unit per Figure 4-32 and then change the dip switch settings to the next shortest repeat interval.

(4) Run a cycle. Repeat step 3 if overheat thermostat activates again.

(5) Install right hand side panel (Refer to para 4.3).

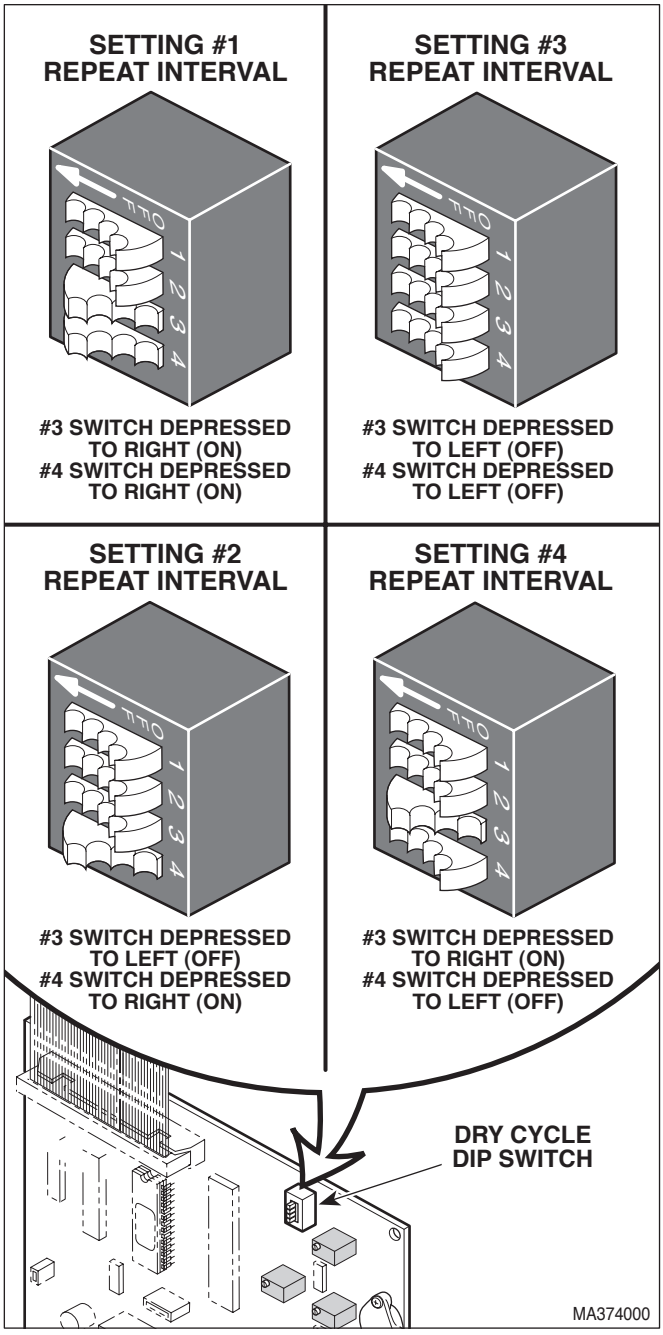

Figure 4-32. Dry Cycle Dip Switches Adjustment

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SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Wiring Diagram

Figure 5-1, sheets 1 thru 3, illustrates the wiring connections for the sterilizer.

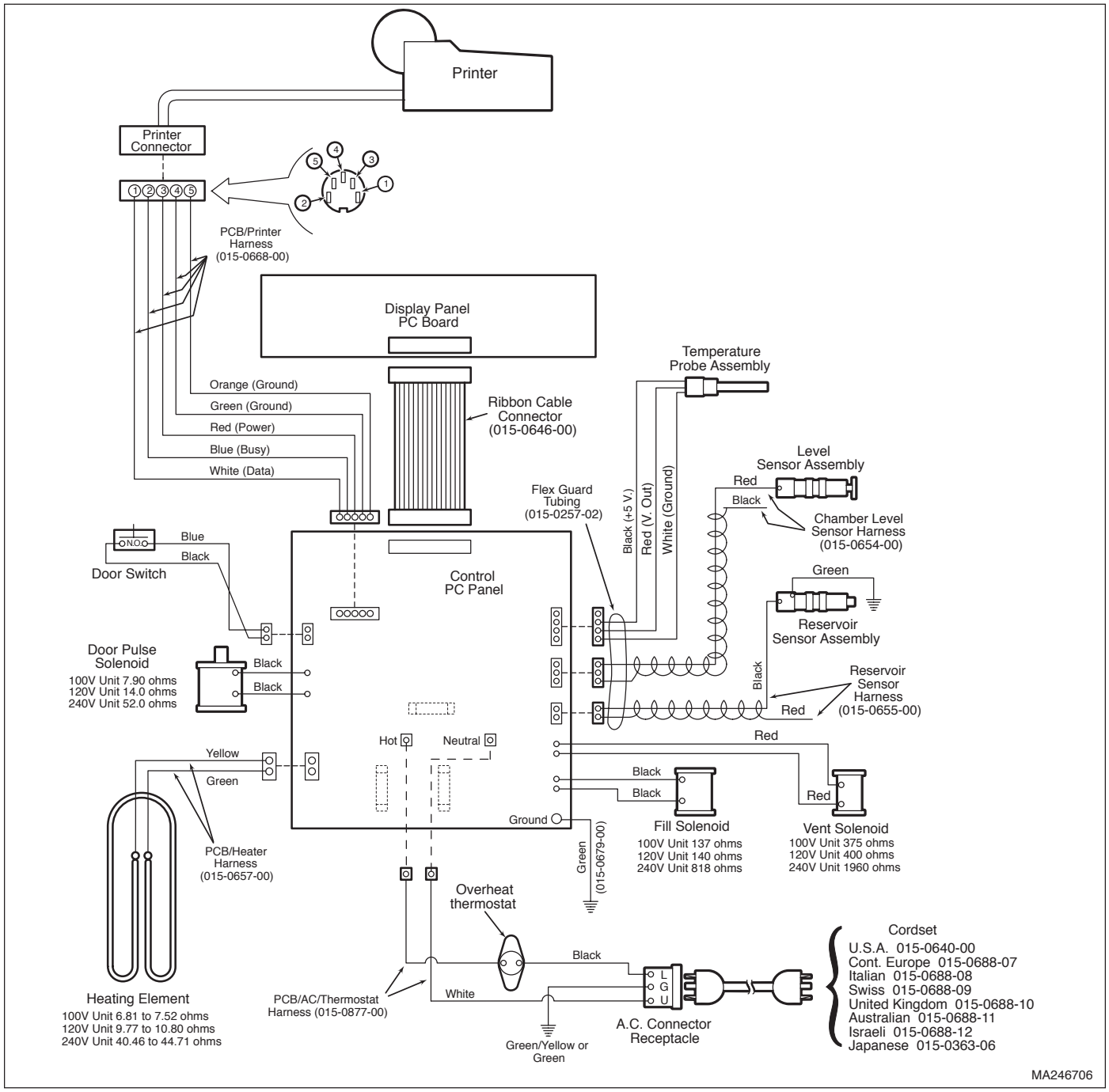

Figure 5-1 (Sheet 1 of 3). Wiring Diagram (Applies To Serial Numbers CZ1000 thru CZ1684, DB1000 thru DB1010, OM1000 thru OM5130, DX1000 thru DX1170, DA1000 thru DA1001, and DY1000 thru DY1007

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SECTION V
SCHEMATICS AND DIAGRAMS

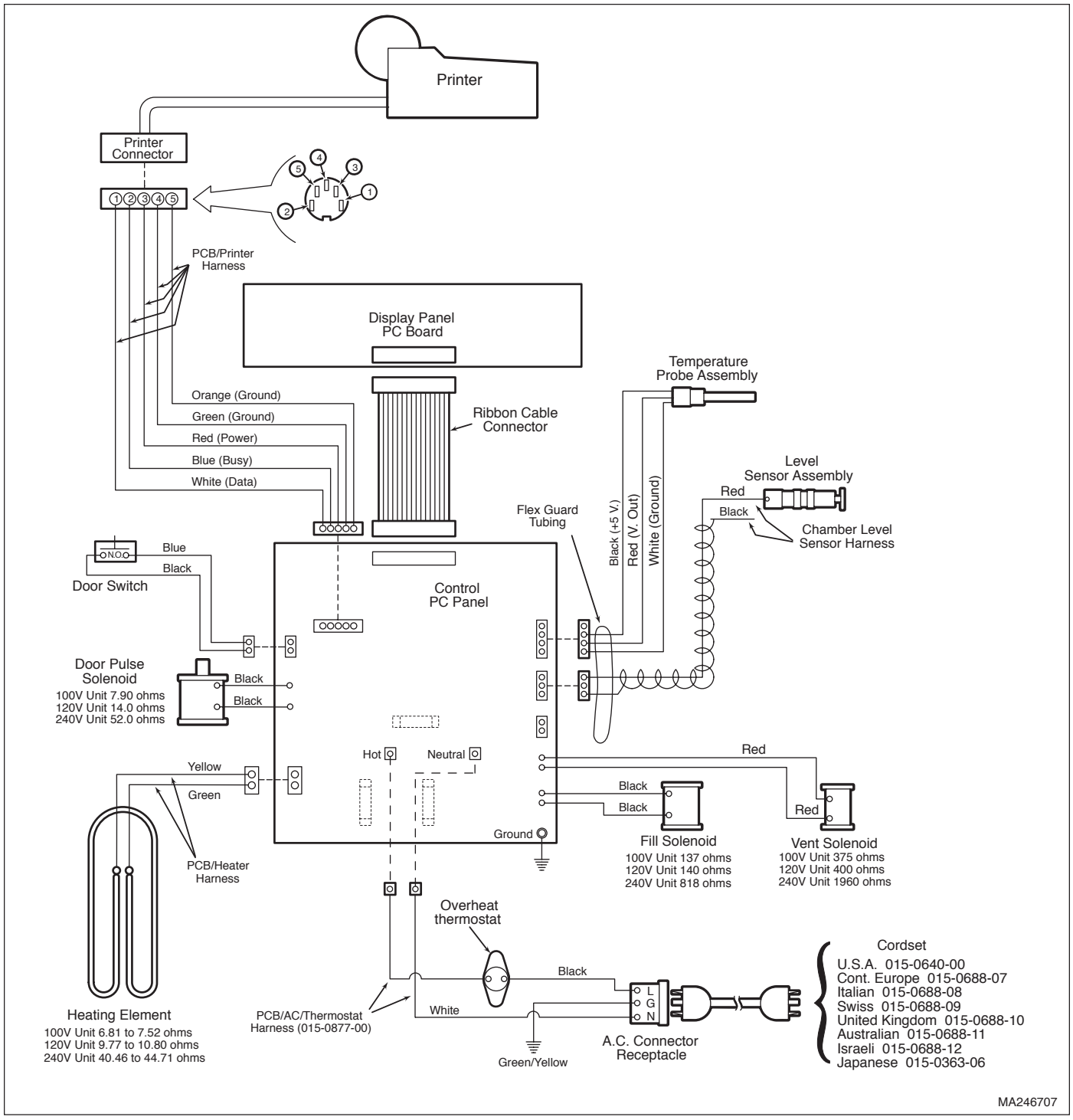

Figure 5-1 (Sheet 2 of 3) Wiring Diagram (Applies To Serial Numbers CZ1685 thru CZ4590, DB1011 thru DB1149, OM5131 thru OM14723, DX1171 thru DX1969, DA1002 thru DA1004, and DY1008 thru DY1138)

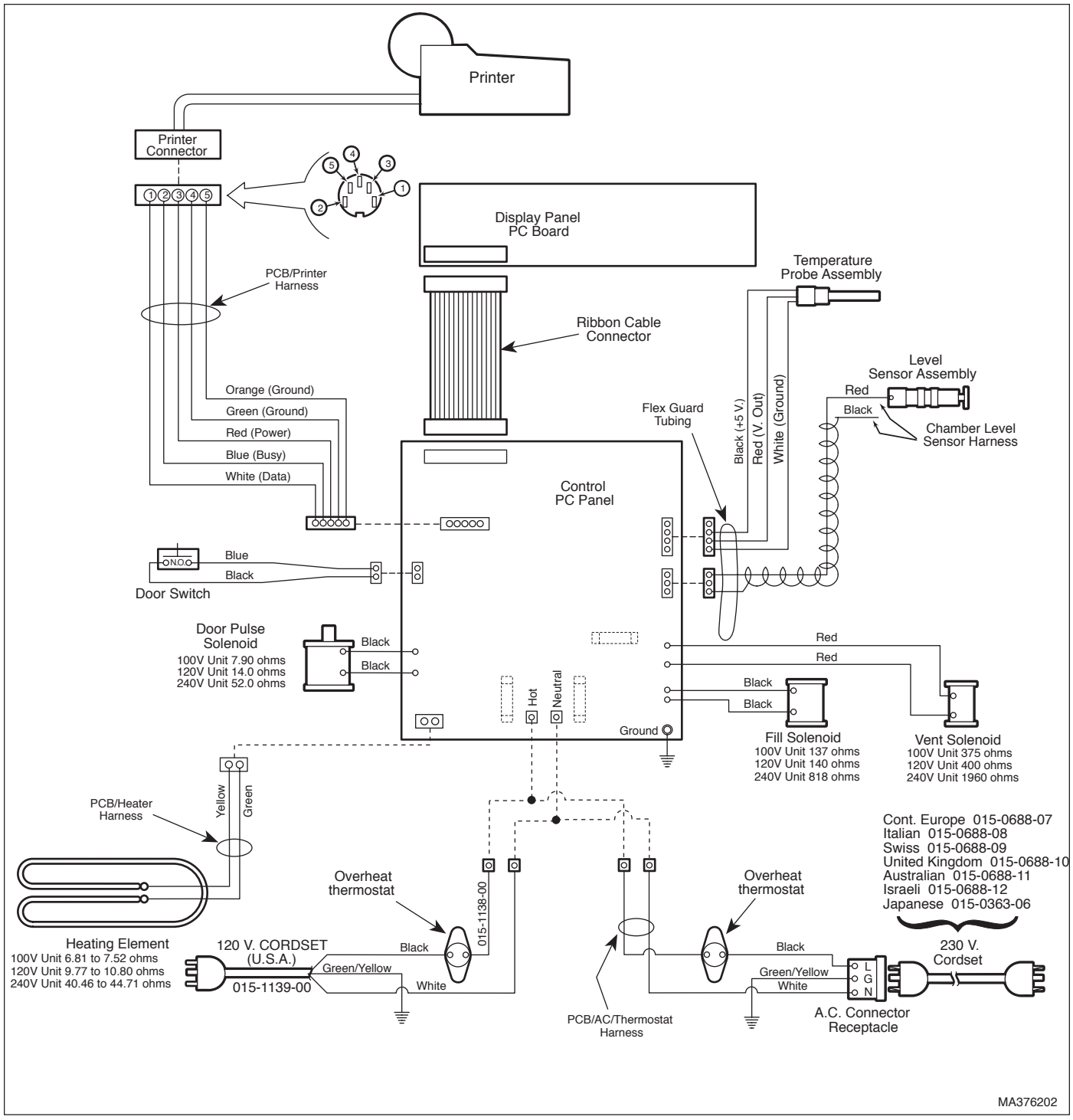

Figure 5-1 (Sheet 3 of 3) Wiring Diagram (Applies To Serial Numbers CZ4591 thru Present, DA1005 thru Present, DB1150 thru Present, DX1970 thru Present, DY1139 thru Present, FD1000 thru Present, and OM14724 thru Present)

5.2 Flow Diagram

Figure 5-2 illustrates the water, heated water, steam, and vented steam/water flow throughout the sterilizer during a cycle.

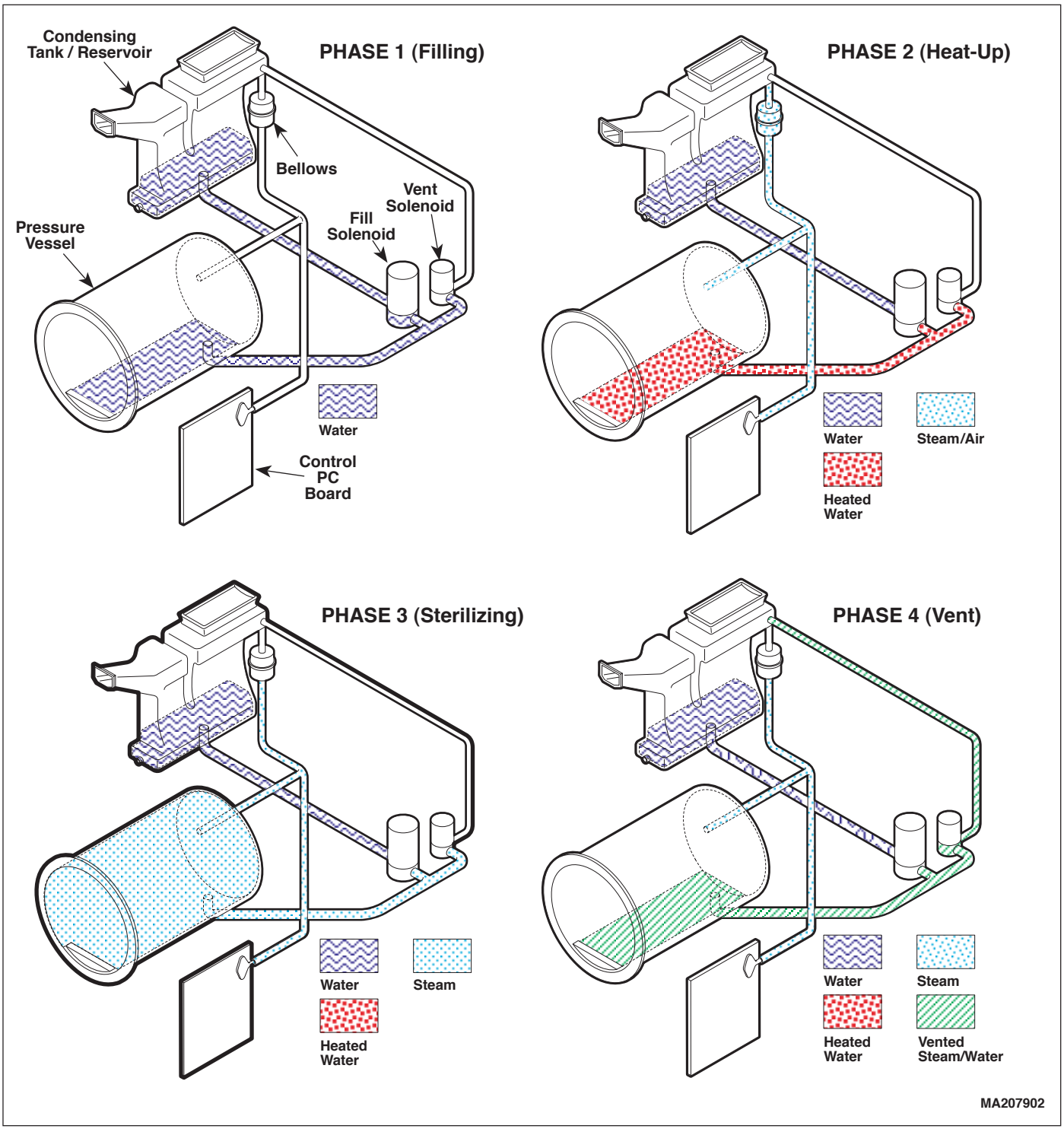

Figure 5-2. Flow Diagram

5.3 Pressure / Temperature Chart

Table 5-1 is a chart which lists what pressure should be present at particular temperature.

Table 5-1. Pressure / Temperature Chart

PSI	°C	°F	PSI	°C	°F
0	100.0	212.0	16	122.0	251.6
1	101.9	215.4	17	123.0	253.4
2	103.6	218.5	18	124.1	255.4
3	105.3	221.5	19	125.0	257.0
4	106.9	224.4	20	126.0	258.8
5	108.4	227.1	21	126.9	260.0
6	109.8	229.6	22	127.8	262.0
7	11.3	232.3	23	128.7	263.7
8	112.6	234.7	24	129.6	265.3
9	113.9	237.0	25	130.4	266.7
10	115.2	239.4	26	131.3	268.3
11	116.4	241.5	27	132.1	269.8
12	117.6	243.7	28	132.9	271.2
13	118.8	245.8	29	133.7	272.7
14	119.9	247.8	30	134.5	274.1
15	121.0	249.8			

Normal steam sterilizing range is 250 °F to 270 °F.

Figures in chart are for steam pressure only. The presence of any air in the autoclave invalidates temperature readings.

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SECTION V
SCHEMATICS AND DIAGRAMS

SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the sterilizer in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets [•] in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

6.3 Torque Specifications and Important Assembly Notes

When specific assembly torque specifications, measurements, or procedures have been identified, by our engineering department, as required to assure proper function of the unit, those torque specifications, measurements, and procedures will be noted on the parts illustrations. Adherence to these requirements is essential.

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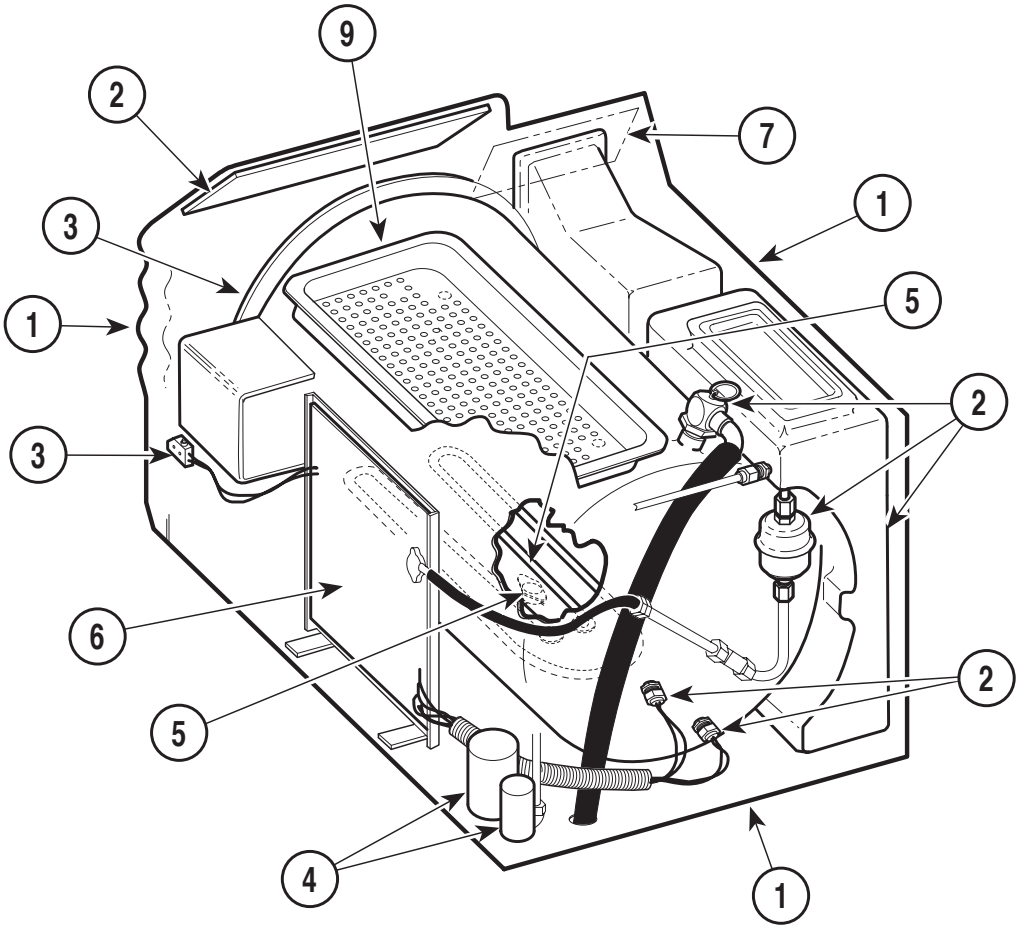
Pictorial Index



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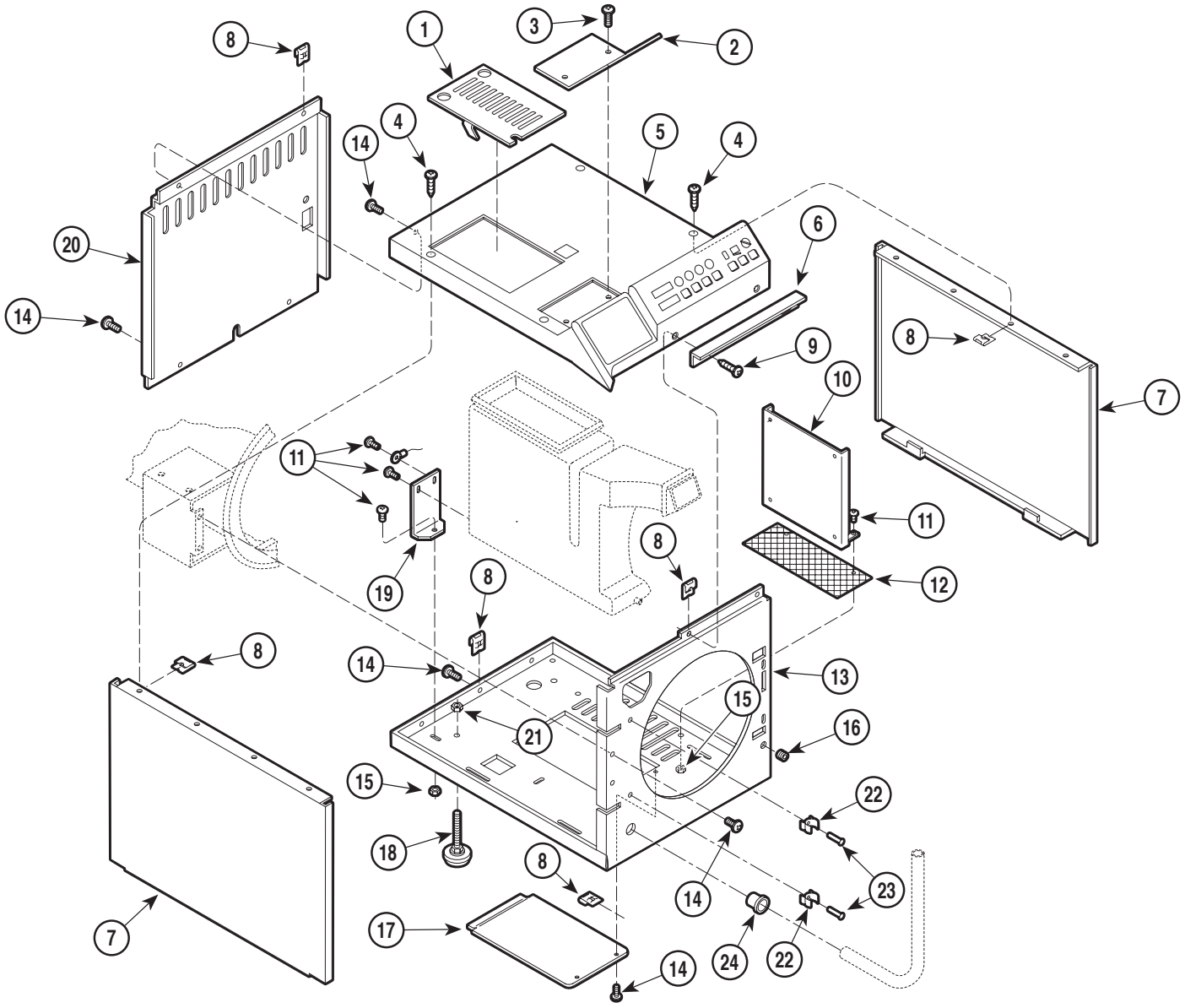
Main Enclosure Components



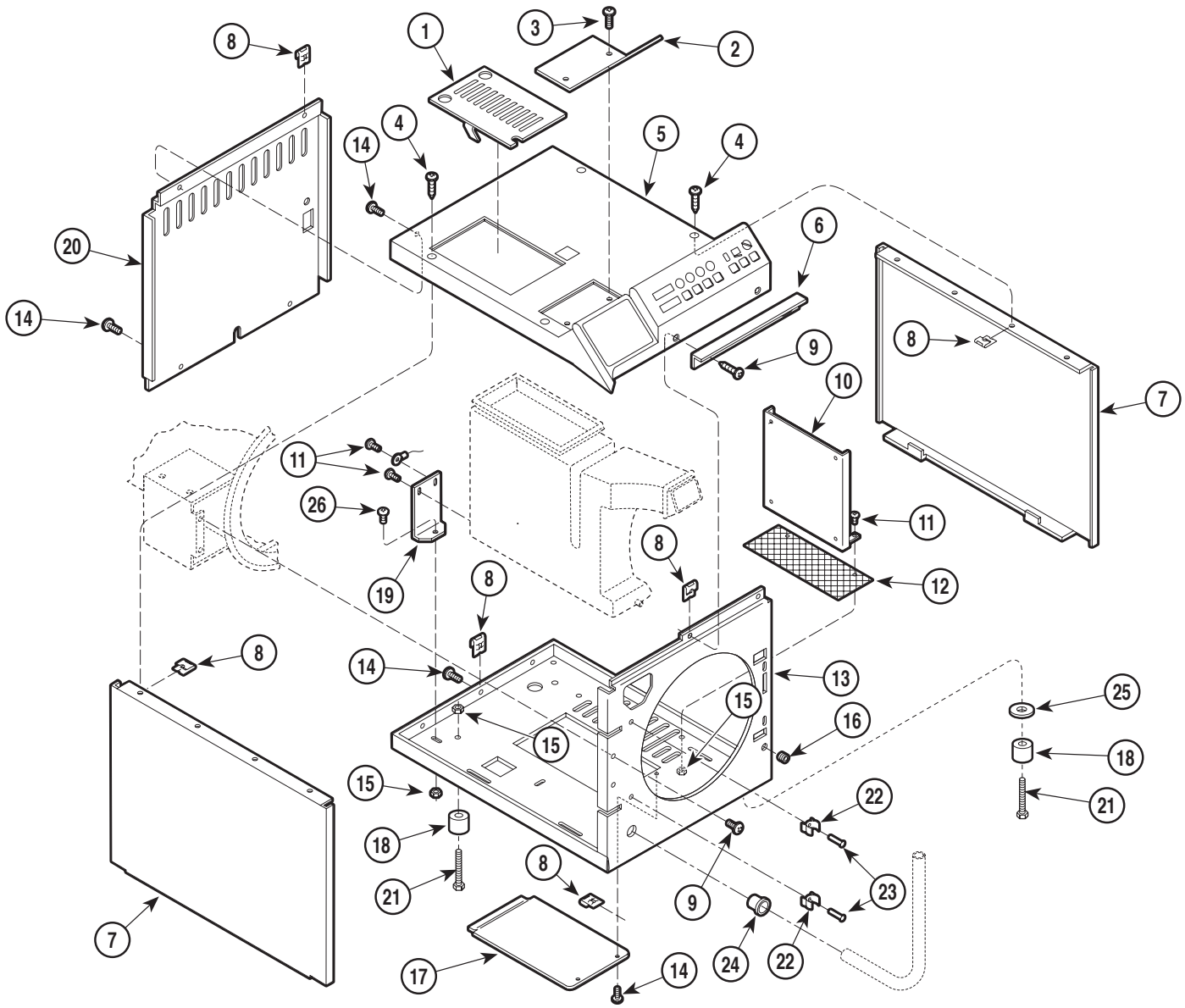
MA225400

Used on units with Serial Number: CZ1000 thru CZ1456 and OM1000 thru OM3287

Item	Part No.	Description	Qty.
1	030-0765-10	Top Inspection Cover	1
2	050-1775-10	Cover Plate - Printer	1
3	040-0008-37	Screw	2
4	040-0010-88	Screw	4
5	002-0356-00	Top Cover	1
6	050-2034-00	Top Cover Steam Block	1
7	050-1767-10	Side Panel	2
8	H352623	Tinnerman Clip	12
9	040-0010-95	Screw	2
10	050-1777-00	Control PCB Bracket	1
11	040-0010-75	Screw	5
12	016-0428-01	Screen	1
13	050-2346-00	Base	1
14	040-0010-18	Screw	11
15	041-0010-04	Nut - w/Starwasher	3
16	053-0394-00	Grommet (Early Units Only)	1
17	050-4326-01	Base Inspection Cover	1
18	016-0404-00	Leveler Foot	4
19	050-1778-00	Bracket	1
20	050-1766-10	Back Panel	1
21	041-0312-05	Lock Nut	4
22	053-0388-01	Hose Clip	2
23	042-0010-21	Pop Rivet	2
24	053-0068-11	Strain Relief Bushing	1

Always Specify Model & Serial Number

Main Enclosure Components



MA294400

Used on units with Serial Number: CZ1457 thru CZ2753, DA1000 thru DA1004, DB1000 thru DB1149, DX1000 thru DX2131, DY1000 thru DY1149, FD1000 thru FD1099 and OM3288 thru OM10596

Item	Part No.	Description	Qty.
1	030-0765-10	Top Inspection Cover	1
2	050-1775-10	Cover Plate - Printer	1
3	040-0008-50	Screw	2
4	040-0010-88	Screw	4
5	002-0356-00	Top Cover (Domestic - English)	1
	002-0356-01	Top Cover (Metric - English)	1
6	050-2034-00	Top Cover Steam Block	1
7	050-1767-10	Side Panel	2
8	H352623	Tinnerman Clip	13
9	040-0010-95	Screw	6
10	050-1777-00	Control PCB Bracket	1
11	040-0010-75	Screw	3
12	016-0428-01	Screen	1
13	050-2518-00	Base	1
14	040-0010-18	Screw	7
15	041-0010-04	Nut - w/Starwasher	3
16	053-0394-00	Grommet (Early Units Only)	1
17	050-4326-01	Base Inspection Cover	1
18	016-0523-00	Leveler Foot	4
19	050-1778-00	Bracket	1
20	050-1766-10	Back Panel	1
21	040-0010-43	Screw	4
22	053-0388-01	Hose Clip	2
23	042-0010-21	Pop Rivet	2
24	053-0068-11	Strain Relief Bushing	1
25	045-0001-00	Washer	4
26	040-0010-74	Screw	2

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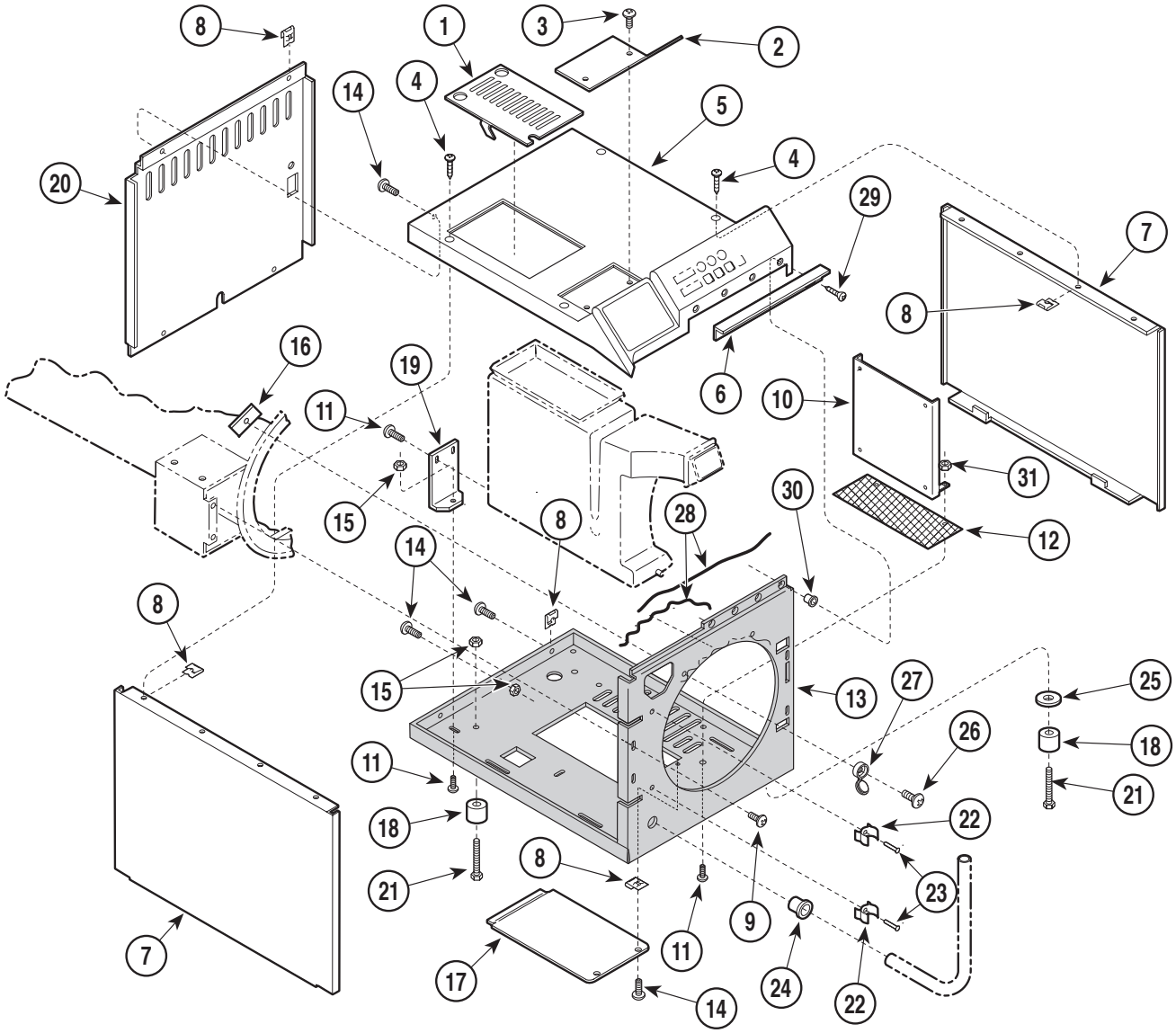
Main Enclosure Components



MA2944012

Used on units with Serial Number: CZ2753 thru CZ4530, DX2131 thru DX2588, DY1149 thru DY1178, FD1099 thru FD1499, FK1000 thru FK1749,FL1000 thru FL1474 and OM10596 thru OM14666

Item	Part No.	Description	Qty.
1	030-1117-00	Top Inspection Cover	1
2	050-1775-00	Cover Plate - Printer	1
3	040-0008-50	Screw	2
4	040-0010-88	Screw	4
5	002-0356-00	Top Cover (Domestic - English)	1
	002-0356-01	Top Cover (Metric - English)	1
	002-0356-02	Top Cover (Metric - French)	1
6	050-2034-00	Top Cover Steam Block	1
7	050-1767-00	Side Panel	2
8	H352623	Tinnerman Clip	10
9	040-0010-95	Screw	4
10	050-3996-00	Control PCB Bracket	1
11	040-0010-75	Screw	3
12	016-0428-04	Screen	1
13	050-3605-00	Base	1
14	040-0010-125	Screw	7
15	041-0010-02	Nut	6
16	050-4750-00	Flange Clamp	2
17	050-4326-01	Base Inspection Cover	1
18	016-0523-01	Leveler Foot	4
19	050-1778-00	Bracket	1
20	050-3524-00	Back Panel	1
21	040-0010-44	Screw	4
22	053-0388-01	Hose Clip	2
23	042-0010-21	Pop Rivet	2
24	053-0068-11	Strain Relief Bushing	1
25	045-0001-00	Washer	4
26	040-0010-124	Screw	2
27	053-0723-00	Screw Cover	2
28	042-0021-00	Adhesive	AR
29	040-0010-113	Screw	2
30	042-0045-01	Nutsert	2
31	041-0010-04	Nut	2

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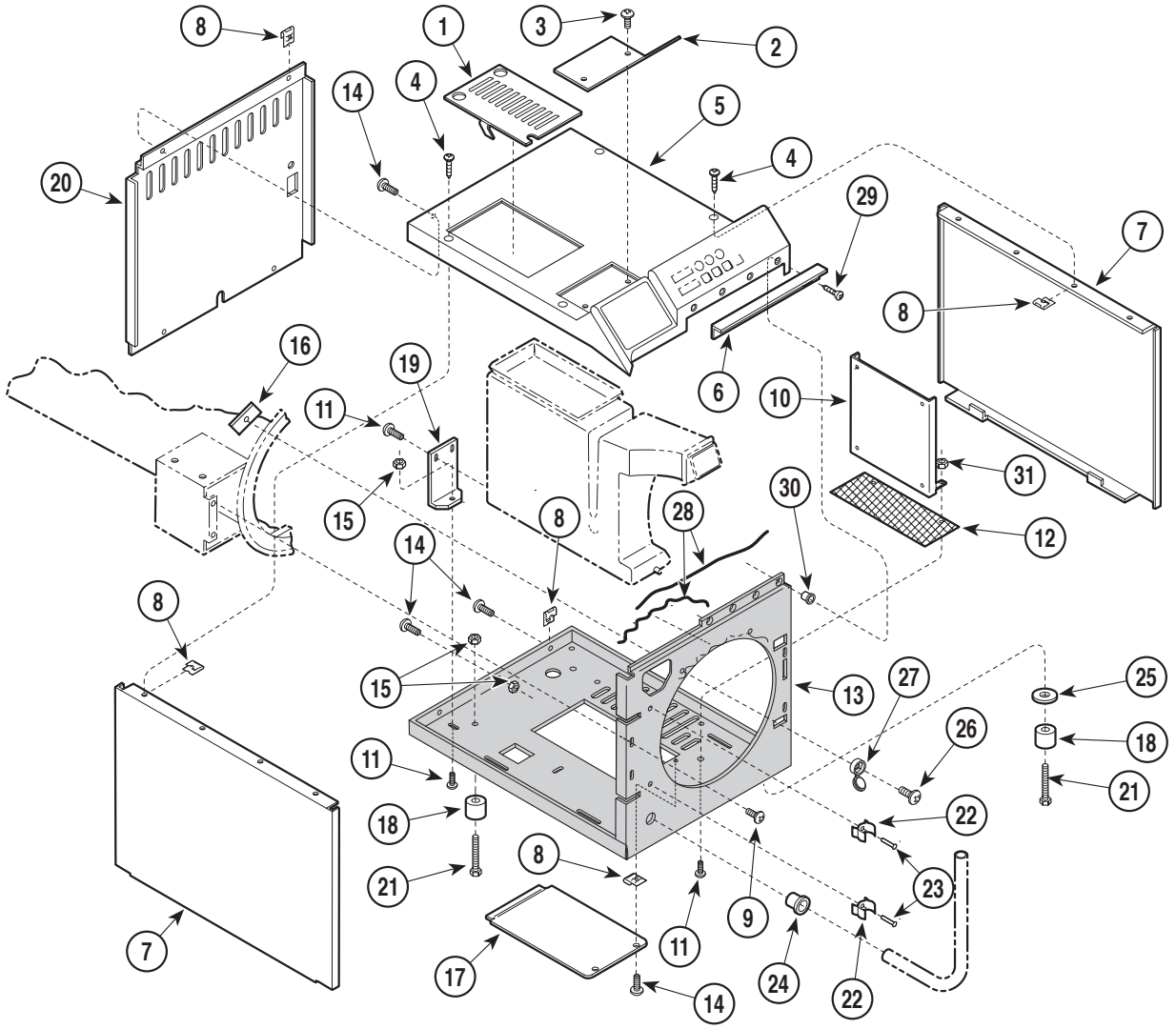
Main Enclosure Components



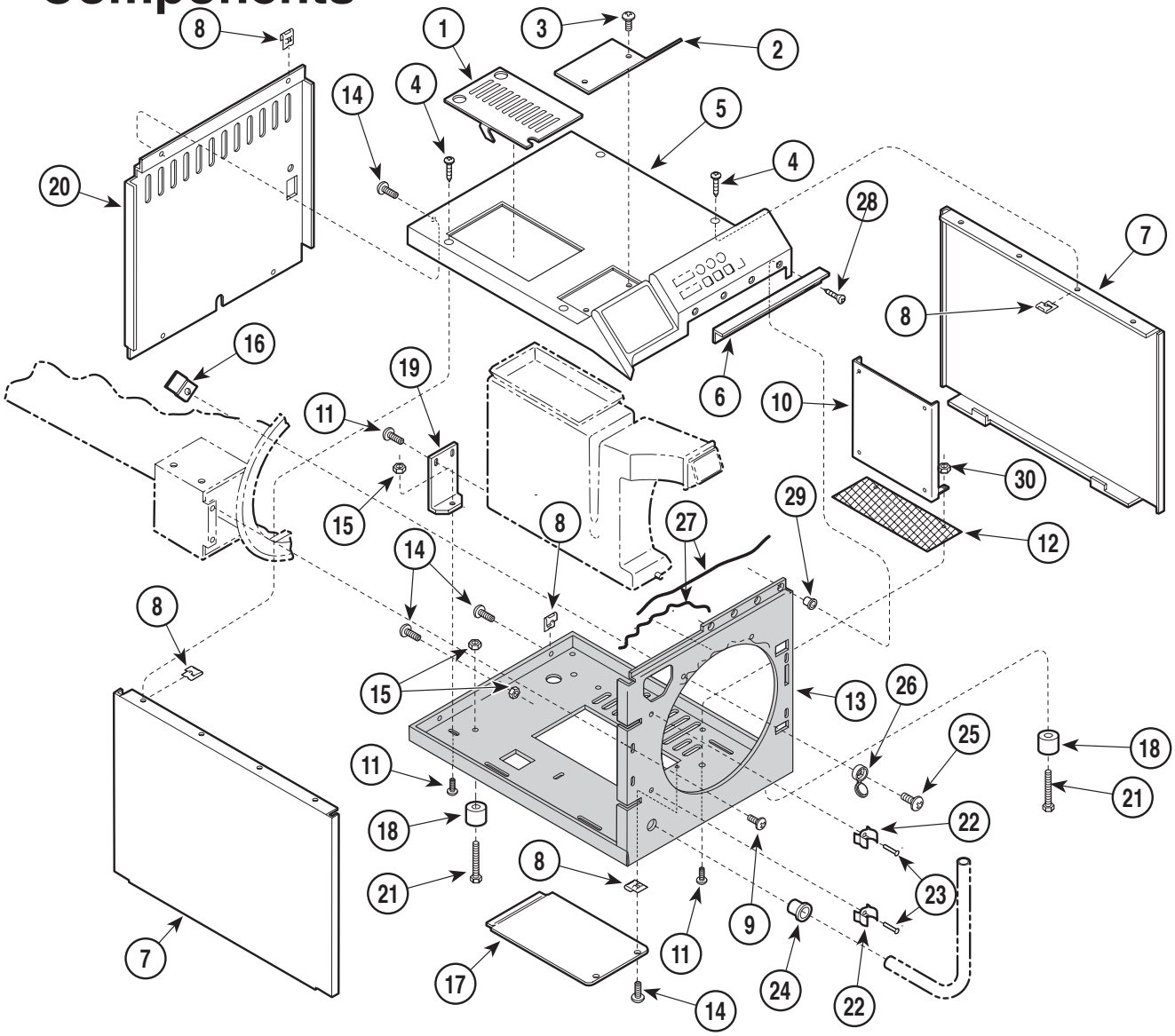
MA294402

Used on units with Serial Number CZ4531 thru CZ4590 and OM14666 thru OM14723

Item	Part No.	Description	Qty.
1	030-1117-00	Top Inspection Cover	1
2	050-1775-00	Cover Plate - Printer	1
3	040-0008-50	Screw	2
4	040-0010-88	Screw	4
5	002-0356-00	Top Cover (Domestic - English)	1
	002-0356-01	Top Cover (Metric - English)	1
6	050-2034-00	Top Cover Steam Block	1
7	050-1767-00	Side Panel	2
8	H352623	Tinnerman Clip	10
9	040-0010-95	Screw	4
10	050-3996-00	Control PCB Bracket	1
11	040-0010-75	Screw	3
12	016-0428-04	Screen	1
13	050-3605-00	Base	1
14	040-0010-125	Screw	7
15	041-0010-02	Nut	6
16	050-4750-00	Flange Clamp	2
17	050-4326-01	Base Inspection Cover	1
18	016-0523-01	Leveler Foot	4
19	050-1778-00	Bracket	1
20	050-3831-00	Back Panel	1
21	040-0010-44	Screw	4
22	053-0388-01	Hose Clip	2
23	042-0010-21	Pop Rivet	2
24	053-0068-11	Strain Relief Bushing	1
25	045-0001-00	Washer	4
26	040-0010-124	Screw	2
27	053-0723-00	Screw Cover	2
28	042-0021-00	Adhesive	AR
29	040-0010-113	Screw	2
30	042-0045-01	Nutsert	2
31	041-0010-04	Nut	2

Always Specify Model & Serial Number

Main Enclosure Components



MA294404

Used on units with Serial Number CZ4591, DA1005, DB1238, DX2589, DY1179, FD1500, FK1750, FL1475, LA1000 and OM14724 thru Present

Item	Part No.	Description	Qty.
1	030-1117-00	Top Inspection Cover	1
2	050-1775-00	Cover Plate - Printer	1
3	040-0008-50	Screw	2
4	040-0010-88	Screw	4
5	002-0356-00	Top Cover (Domestic - English)	1
	002-0356-01	Top Cover (Metric - English)	1
	002-0356-02	Top Cover (Metric - French)	1
6	050-2034-00	Top Cover Steam Block	1
7	050-1767-00	Side Panel	2
8	H352623	Tinnerman Clip	10
9	040-0010-95	Screw	5
10	050-3996-00	Control PCB Bracket	1
11	040-0010-75	Screw	3
12	016-0428-04	Screen	1
13	050-4325-00	Base	1
14	040-0010-125	Screw	6
15	041-0010-02	Nut	5
16	050-4750-00	Flange Clamp	2
17	050-4326-00	Base Inspection Cover	1
18	016-0523-01	Leveler Foot	4
19	050-1778-00	Bracket	1
20	050-3831-00	Back Panel (230 V.)	1
	050-3831-01	Back Panel (120 V.)	1
21	040-0010-44	Screw	4
22	053-0388-01	Hose Clip	2
23	042-0010-21	Pop Rivet	2
24	053-0068-11	Strain Relief Bushing	1
25	040-0010-124	Screw	2
26	053-0723-00	Screw Cover	2
27	042-0021-00	Adhesive	AR
28	040-0010-113	Screw	2
29	042-0045-16	Nutsert	2
30	041-0010-04	Nut	2

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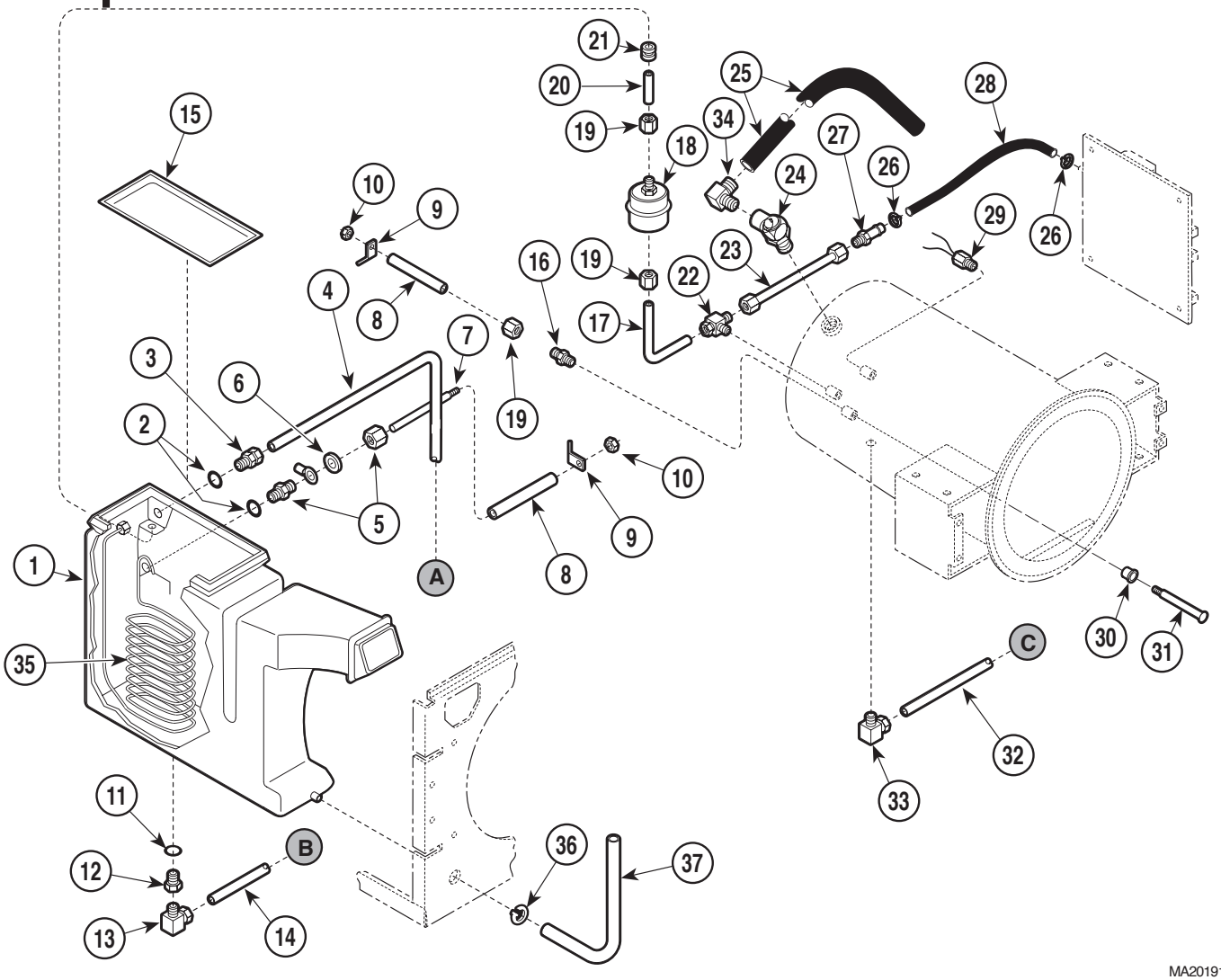
Plumbing & Sensor Components



MA201910

Used on units with Serial Number CZ1000 thru CZ1119 and OM1000 thru OM1352

Item	Part No.	Description	Qty.
1	053-0376-00	Condensing Tank	1
2	053-0392-00	O-ring	2
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	014-0215-00	Union Drilled (Includes Sleeve)	1
6	045-0001-56	Lockwasher	1
7	057-0273-01	Lever Sensor Rod	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30,and 31))	2
9	015-0595-00	Terminal	2
10	041-0006-02	Locknut	2
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0376-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut	2
20	014-0208-00	Tube	1
21	053-0394-00	Grommet	1
22	014-0202-00	Male Branch Tee	1
23	014-0207-00	PCB Pressure Sensor Tube	1
24	002-0359-00	Pressure Relief Valve (35 P.S.I.) (Includes elbow, Item 36)	1
25	053-0403-01	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector	1
28	053-0404-01	Tube - PCB/Comp. Connector	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
34	014-0218-00	Male Elbow	1
35	052-0173-00	Condensing Coil	1
36	016-0450-00	Hose Clip	1
37	053-0391-01	Hose	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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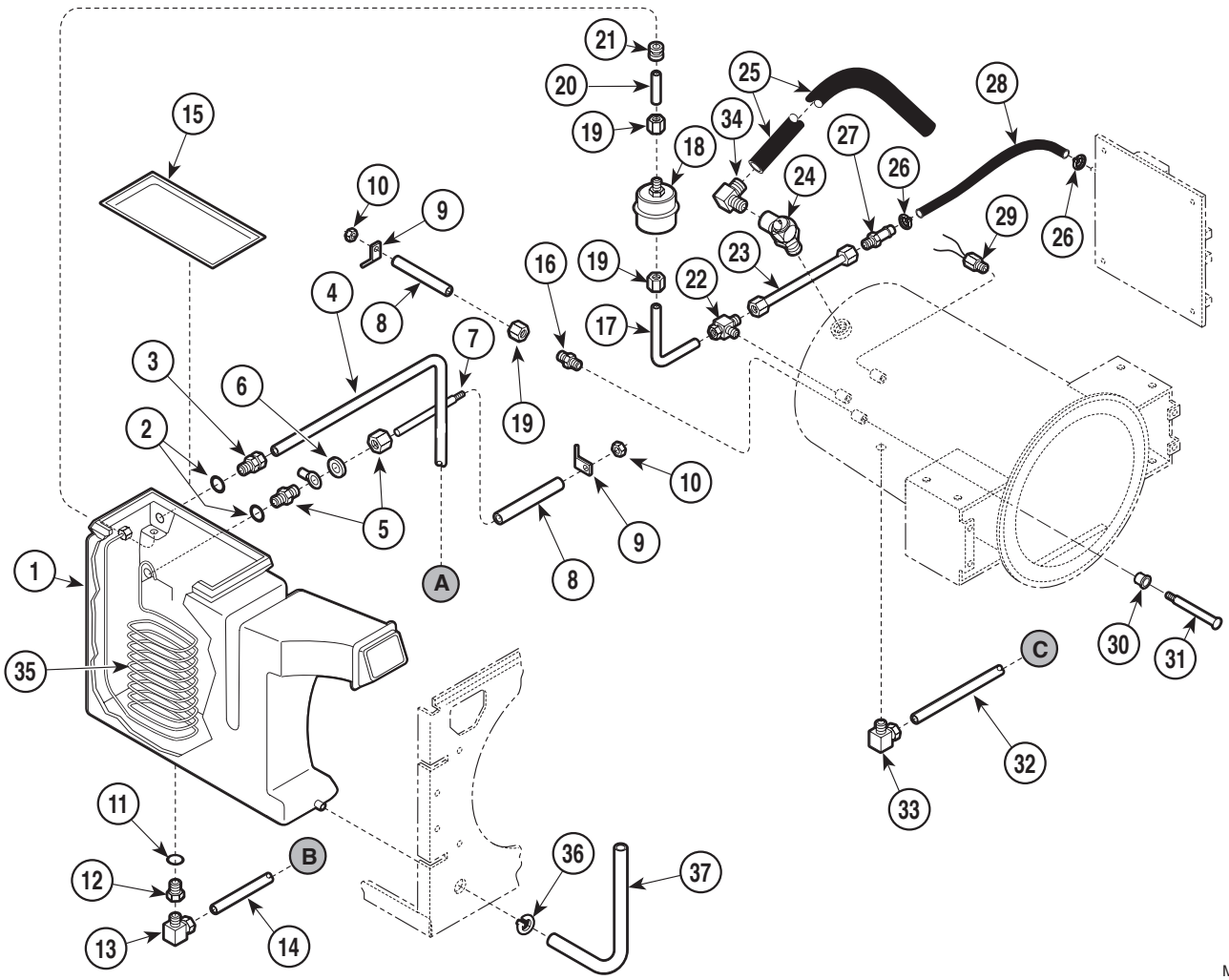
Plumbing & Sensor Components



Used on Units with Serial Numbers: CZ1120 thru CZ1684, DA1000 thru DA1001, DB1000 thru DB1010, DX1000 thru DX1000 and OM1353 thru OM4864

Item	Part No.	Description	Qty.
1	053-0512-00	Condensing Tank	1
2	H98137	Gasket	2
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	014-0215-00	Union Drilled (Includes Sleeve)	1
6	045-0001-56	Lockwasher	1
7	057-0273-01	Lever Sensor Rod	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30,and 31)	2
9	015-0595-00	Terminal	2
10	041-0006-02	Locknut	2
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0512-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	053-0394-00	Grommet	1
22	014-0202-00	Male Branch Tee	1
23	014-0207-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-00	Pressure Relief Valve (35 P.S.I.) (Includes Elbow, Item 36)	1
25	053-0403-01	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-01	Tube-PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
34	014-0218-00	Male Elbow	1
35	052-0173-00	Condensing Coil	1
36	016-0450-00	Hose Clip	1
37	053-0391-01	Hose	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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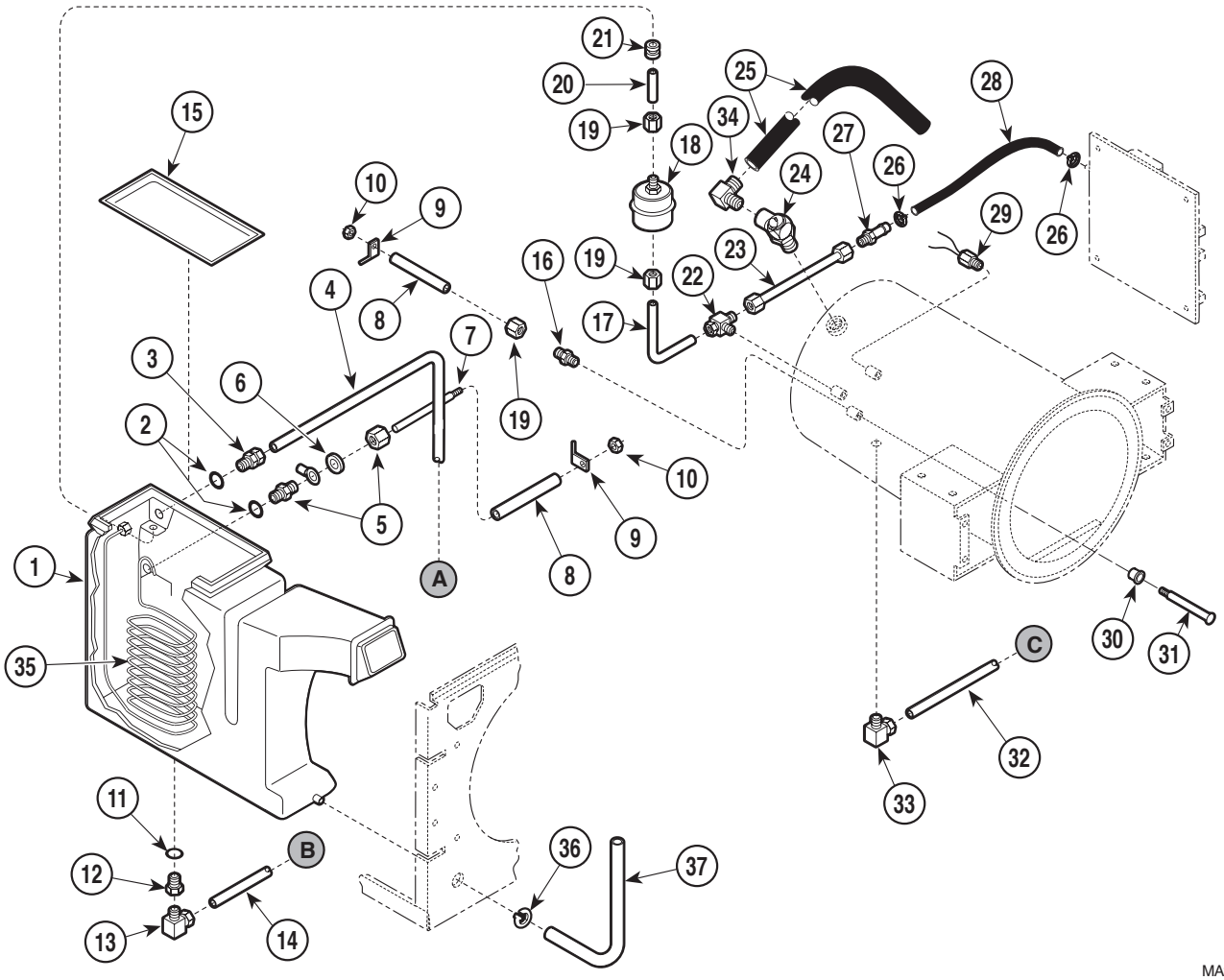
Plumbing & Sensor Components



MA201910

Used on Units with Serial Numbers: OM4865 thru OM5130 DX1001 thru DX1170 DY1000 thru DY1007

Item	Part No.	Description	Qty.
1	053-0512-00	Condensing Tank	1
2	H98137	Gasket	2
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	014-0215-00	Union Drilled (Includes Sleeve)	1
6	045-0001-56	Lockwasher	1
7	057-0273-01	Lever Sensor Rod	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,31,and 31)	2
9	015-0595-00	Terminal	2
10	041-0006-02	Locknut	2
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0512-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	053-0394-00	Grommet	1
22	014-0202-00	Male Branch Tee	1
23	014-0207-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-00	Pressure Relief Valve (35 P.S.I.) (Includes Elbow, Item 36)	1
25	053-0613-02	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-01	Tube-PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
34	014-0258-00	Male Elbow	1
35	052-0173-00	Condensing Coil	1
36	016-0450-00	Hose Clip	1
37	053-0391-01	Hose	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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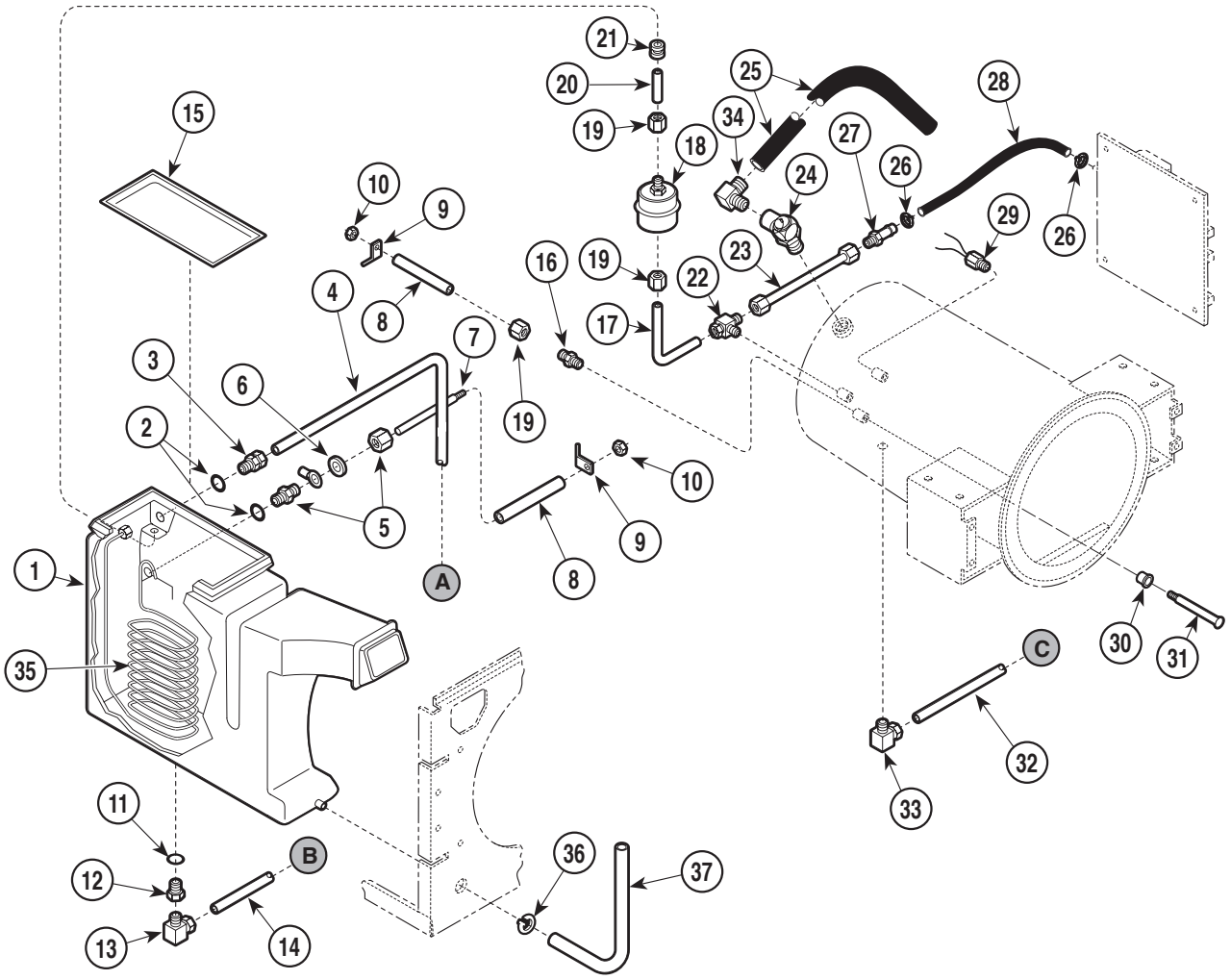
Plumbing & Sensor Components



MA201911

Used on Units with Serial Numbers: CZ1685 thru CZ4334, DA1002 thru DA1004 DB1011 thru DB1237, DX1171 thru DX2555, DY1008 thru DY1176, FD1000 thru FD1399, FK1000 thru FK1699, FL1000 thru FL1474 and OM5131 thru OM14524

Item	Part No.	Description	Qty.
1	053-0614-00	Condensing Tank	1
2	H98137	Gasket	1
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	016-0450-00	Hose Clip	1
6	052-0173-00	Condensing Coil	1
7	053-0391-01	Hose	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30 and 31)	1
9	015-0595-00	Terminal	1
10	041-0006-02	Locknut	1
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0614-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	053-0394-00	Grommet	1
22	014-0202-00	Male Branch Tee	1
23	014-0207-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-00	Pressure Relief Valve (35 P.S.I.) (include Elbow, Item 35)	1
25	053-0613-01	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-01	Tube-PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
34	014-0258-00	Male Elbow	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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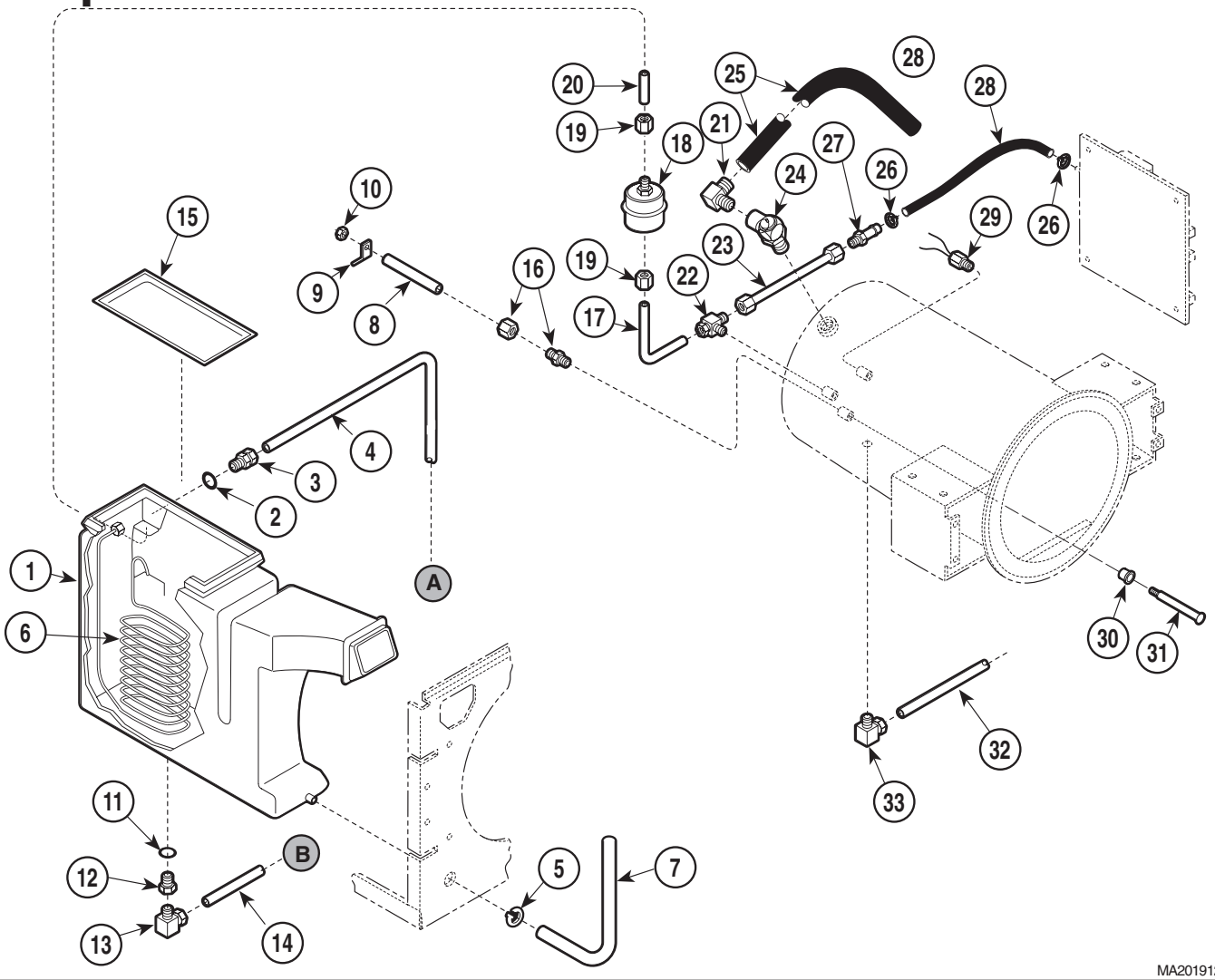
Plumbing & Sensor Components



MA201912

Used on Units with Serial Numbers: CZ4335 thru CZ5944, DB1238 thru DB1262, DX2556 thru DX2883,DY1177 thru DY1178, FD1400 thru FD1954, FK1700 thru FK2279, FL1475 thru FL1843 and OM14525 thru OM17468

Item	Part No.	Description	Qty.
1	053-0614-00	Condensing Tank	1
2	H98137	Gasket	1
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	016-0748-00	Hose Clip	1
6	052-0173-00	Condensing Coil	1
7	053-0391-01	Hose	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30,and 31)	1
9	015-0595-00	Terminal	1
10	041-0006-02	Locknut	1
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0614-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	014-0258-00	Male Elbow	1
22	014-0202-00	Male Branch Tee	1
23	014-0207-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-01	Pressure Relief Valve (40 P.S.I.) (Includes Elbow, Item 35)	1
25	053-0613-01	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-01	Tube-PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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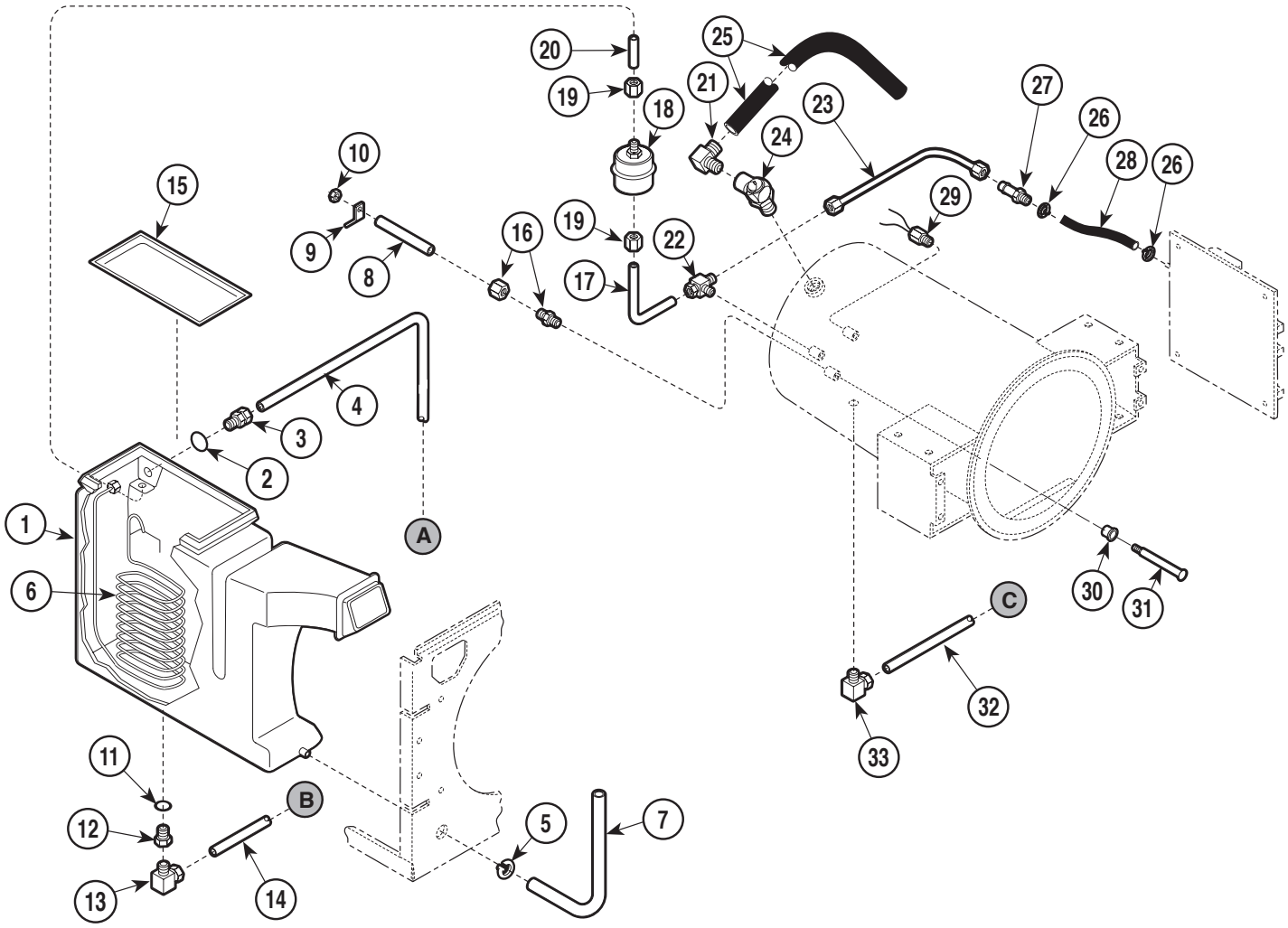
Plumbing & Sensor Components



MA510809

Used on Units with Serial Numbers: CZ5945 thru CZ6530, DB1261 thru DB1272, DX2883 thru DX2878,DY1178 thru DY1179, FD1954 thru FD1954, FK2279 thru FK2304, FL1843 thru FL1948, LA1000 thru LA1023 and OM17468 thru OM18880

Item	Part No.	Description	Qty.
1	053-0614-00	Condensing Tank	1
2	H98137	Gasket	1
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	016-0748-00	Hose Clip	1
6	052-0173-00	Condensing Coil	1
7	053-0391-01	Hose	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30, and 31)	1
9	015-0595-00	Terminal	1
10	041-0006-02	Locknut	1
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0614-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	014-0258-00	Male Elbow	1
22	014-0202-00	Male Branch Tee	1
23	014-0315-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-01	Pressure Relief Valve (40 P.S.I.) (Includes Elbow, Item 35)	1
25	053-0613-01	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-04	Tube-PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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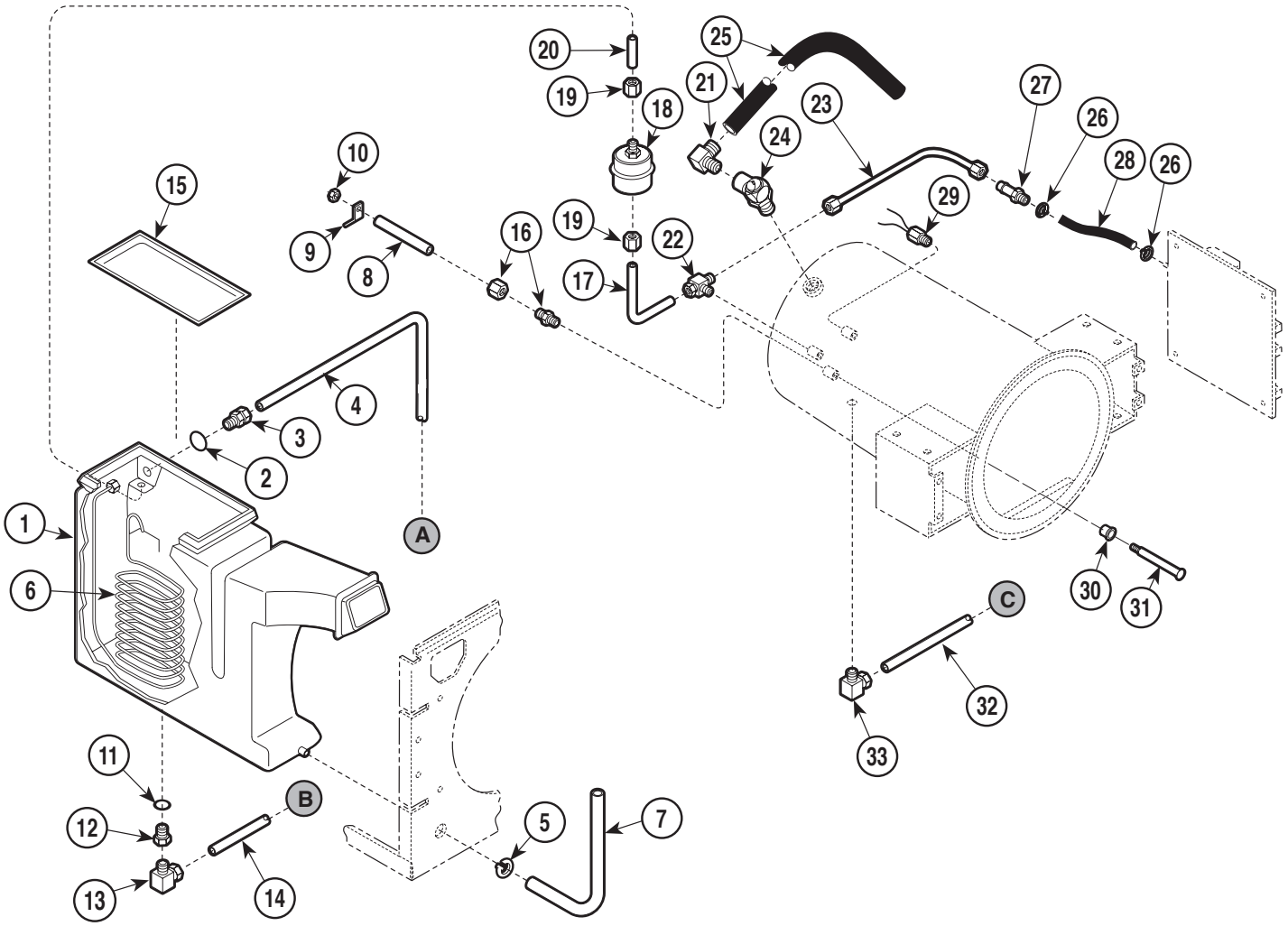
Plumbing & Sensor Components



MA510809

Used on Units with Serial Numbers: CZ6531 thru CZ7236, DA1005 thru DA1006, DB1273 thru DB1272, DX2879 thru DX2906, DY1179 thru DY1182, FD1955 thru FD2104, FK2305 thru FK2324, FL1949 thru FL1963, LA1024 thru LA1028, and OM18881 thru OM20225

Item	Part No.	Description	Qty.
1	053-0966-00	Condensing Tank	1
2	H98137	Gasket	1
3	014-0216-00	Bulkhead Union	1
4	014-0205-00	Tube	1
5	016-0748-01	Hose Clip	1
6	052-0173-00	Condensing Coil	1
7	053-0391-01	Hose	1
8	002-0358-00	Lever Sensor Tube (Includes Item 9,10,16,30, and 31)	1
9	015-0595-00	Terminal	1
10	041-0006-02	Locknut	1
11	053-0393-00	O-ring	1
12	014-0209-00	Bulkhead Couple	1
13	014-0184-01	Male Elbow	1
14	014-0203-00	Tube	1
15	053-0966-01	Condensing Tank Lid	1
16	014-0212-00	Connector	1
17	014-0206-00	Tube	1
18	002-0375-00	Bellows Assembly	1
19	014-0392-00	Compression Nut (Refer to Kit [*])	2
20	014-0208-00	Tube	1
21	014-0258-00	Male Elbow	1
22	014-0202-00	Male Branch Tee	1
23	014-0315-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
24	002-0359-01	Pressure Relief Valve (40 P.S.I.) (Includes Elbow, Item 35)	1
25	053-0613-02	Tube - Pressure Relief	1
26	015-0013-05	Cable Tie (High Temp)	4
27	014-0217-00	Compression Connector (Refer to Kit [*])	1
28	053-0404-04	Tube - PCB Connector (Refer to Kit [*])	1
29	002-0357-00	Temperature Probe Assembly	1
30	053-0407-00	Bushing	1
31	030-0858-00	Level Sensor Assembly	1
32	014-0204-00	Tube	1
33	014-0184-01	Male 90° Elbow	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 19, 23, 26, 27, & 28)	

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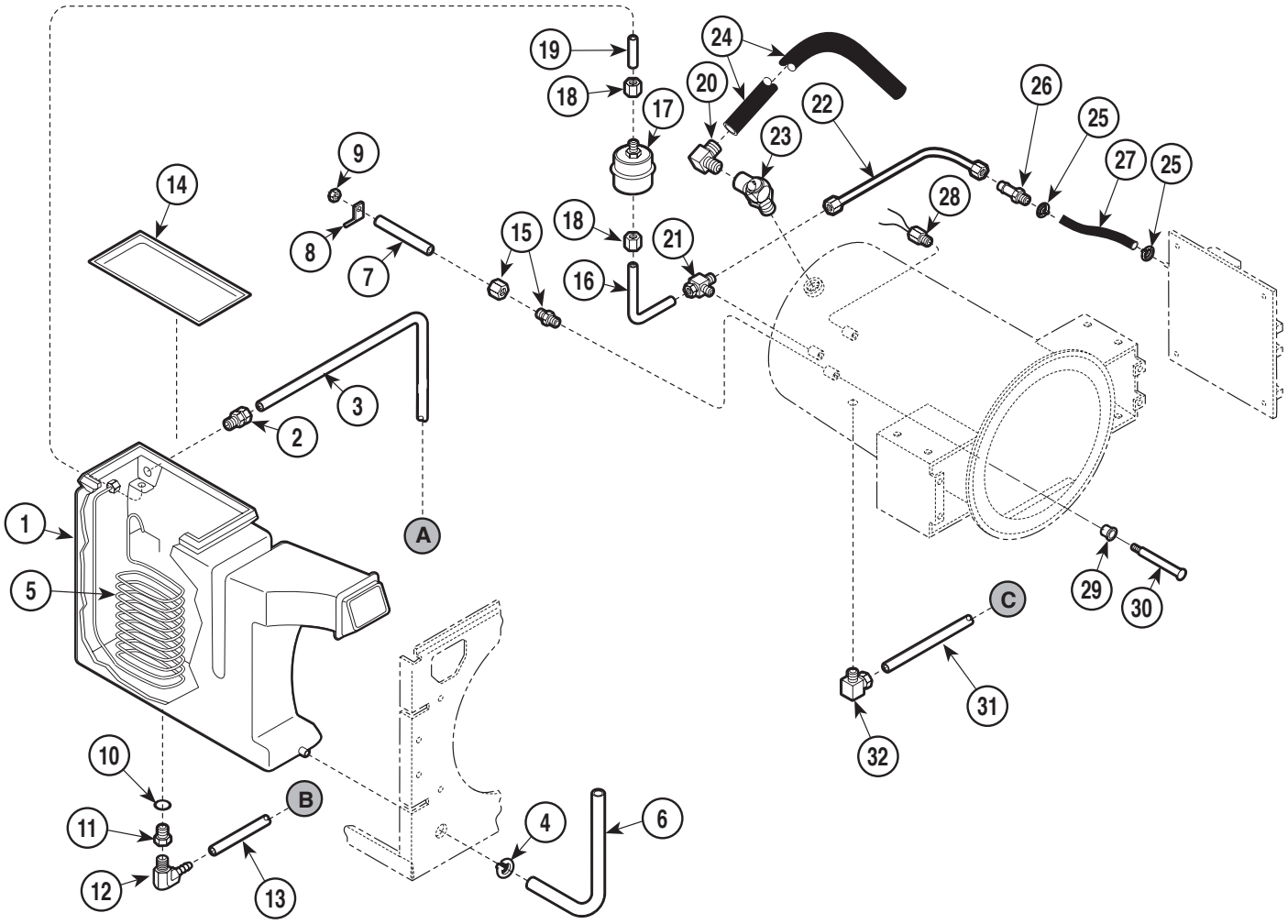
Plumbing & Sensor Components



MA510804

Used on Units with Serial Numbers: CZ7237 thru CZ10065, DA1005 thru DA1006, DB1273 thru DB1283, DX2907 thru DX3148, DY1183 thru DY1191, FD2105 thru FD2265, FK2324 thru FK2325, FL1963thru FL1964, LA1028 thru LA1029, and OM20226 thru OM25096

Item	Part No.	Description	Qty.
1	053-0966-00	Condensing Tank	1
2	014-0216-00	Bulkhead Union	1
3	014-0205-00	Tube	1
4	016-0748-01	Hose Clip	1
5	052-0173-00	Condensing Coil	1
6	053-0391-01	Hose	1
7	002-0358-00	Lever Sensor Tube (Includes Item 8,9,15,29, and 30)	1
8	015-0595-00	Terminal	1
9	041-0006-02	Locknut	1
10	053-0393-00	O-ring	1
11	014-0209-00	Bulkhead Couple	1
12	014-0348-00	Barb Fitting Elbow	1
13	053-1033-01	Norprene Tubing	1
14	053-0966-01	Condensing Tank Lid	1
15	014-0212-00	Connector	1
16	014-0206-00	Tube	1
17	002-0375-00	Bellows Assembly	1
18	014-0392-00	Compression Nut (Refer to Kit [*])	2
19	014-0208-00	Tube	1
20	014-0258-00	Male Elbow	1
21	014-0202-00	Male Branch Tee	1
22	014-0315-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
23	002-0359-01	Pressure Relief Valve (40 P.S.I.) (Includes Elbow, Item 34)	1
24	053-0613-02	Tube - Pressure Relief	1
25	015-0013-05	Cable Tie (High Temp)	2
26	014-0217-00	Compression Connector (Refer to Kit [*])	1
27	053-0404-04	Tube - PCB Connector (Refer to Kit [*])	1
28	002-0357-00	Temperature Probe Assembly	1
29	053-0407-00	Bushing	1
30	030-0858-00	Level Sensor Assembly	1
31	014-0204-00	Tube	1
32	014-0184-01	Male 90° Elbow	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 18, 22, 25, 26, & 27)	

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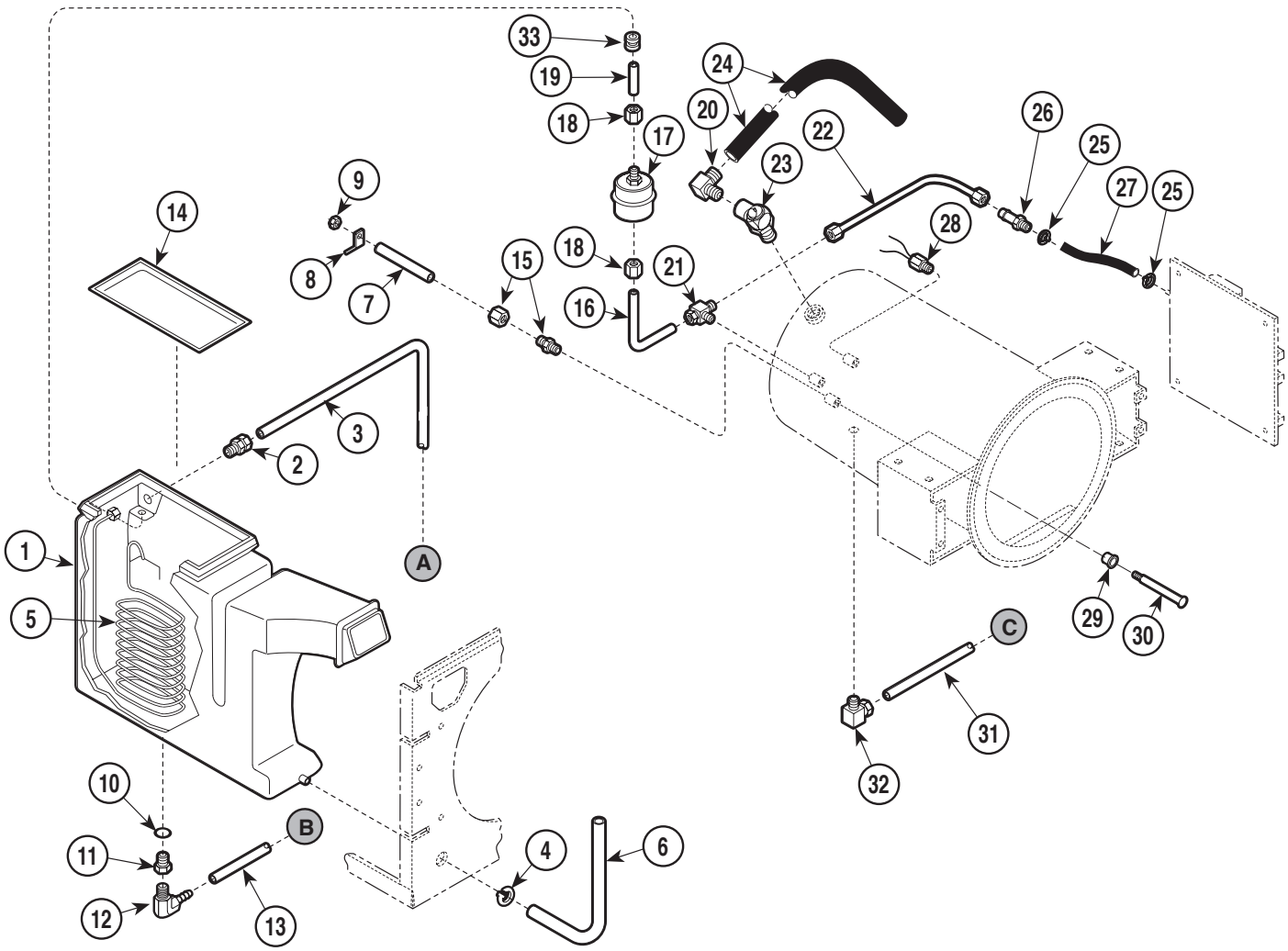
Plumbing & Sensor Components



MA510807

Used on Units with Serial Numbers: CZ10066, DA1007, DB1284, DX3149, DY1192, FD2266, FK2326, FL1965, LA1030, and OM25097, thru Present

Item	Part No.	Description	Qty.
1	053-0966-00	Condensing Tank	1
2	014-0216-00	Bulkhead Union	1
3	014-0205-00	Tube	1
4	016-0748-01	Hose Clip	1
5	052-0173-00	Condensing Coil	1
6	053-0391-01	Hose	1
7	002-0358-00	Lever Sensor Tube (Includes Item 8,9,15,29, and 30)	1
8	015-0595-00	Terminal	1
9	041-0006-02	Locknut	1
10	053-0393-00	O-ring	1
11	014-0209-00	Bulkhead Couple	1
12	014-0348-00	Barb Fitting Elbow	1
13	053-1033-01	Norprene Tubing	1
14	053-0966-01	Condensing Tank Lid	1
15	014-0212-00	Connector	1
16	014-0206-00	Tube	1
17	002-0654-00	Bellows Assembly	1
18	014-0392-00	Compression Nut (Refer to Kit [*])	2
19	014-0208-00	Tube	1
20	014-0258-00	Male Elbow	1
21	014-0202-00	Male Branch Tee	1
22	014-0315-00	PCB Pres. Sensor Tube (Refer to Kit [*])	1
23	002-0359-01	Pressure Relief Valve (40 P.S.I.) (Includes Elbow, Item 34)	1
24	053-0613-02	Tube - Pressure Relief	1
25	015-0013-05	Cable Tie (High Temp)	2
26	014-0217-00	Compression Connector (Refer to Kit [*])	1
27	053-0404-04	Tube - PCB Connector (Refer to Kit [*])	1
28	002-0357-00	Temperature Probe Assembly	1
29	053-0407-00	Bushing	1
30	030-0858-00	Level Sensor Assembly	1
31	014-0204-00	Tube	1
32	014-0184-01	Male 90° Elbow	1
33	053-0394-02	Grommet	1
(*)	002-0593-01	(*)Pressure Sensor Tube Kit (Includes #'s 18, 22, 25, 26, & 27)	

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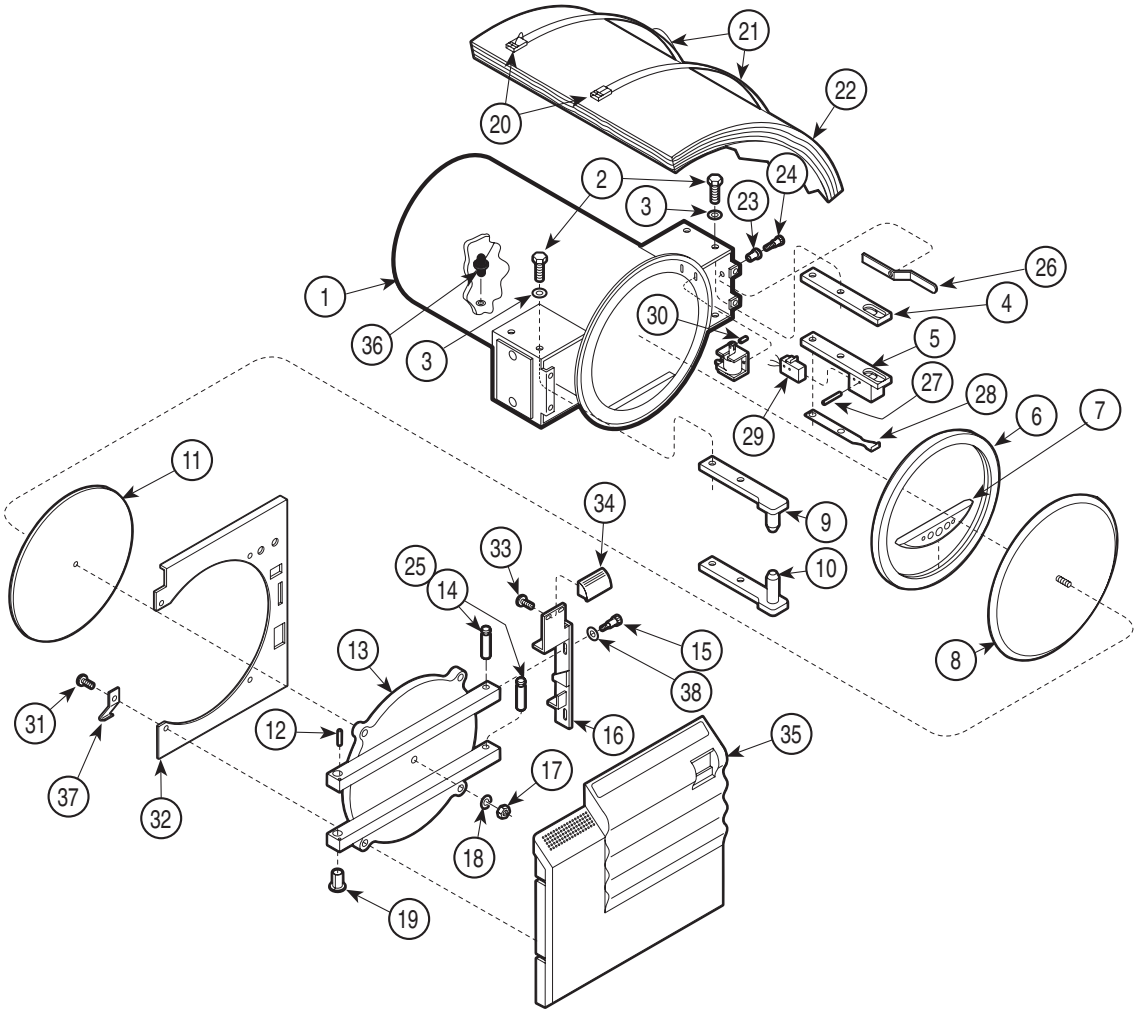
Pressure Vessel Components



MA202010

Used on Units with Serial Numbers: CZ1000 thru CZ8199, DB1000 thru DB1277, DX1000 thru DX3006, DY1000 thru DY1185, FD1000 thru FD2131, FK1000 thru FK3224, FL1000 thru FL1963, LA1000 thru LA1028, and OM1000 thru OM21774

Item	Part No.	Description	Qty.
1		Chamber	1
2		Screw	8
3		Washer	8
4		Right Bracket	1
5		Switch Weldment	1
6	053-0366-00	Door Gasket (Incl. in 002-0361-00 Kit)	1
7	053-0508-00	Dam Gasket (Incl. in 002-0361-00 Kit)	1
8	030-1016-00	Housing	1
9		Top Bracket	1
10		Bottom Bracket	1
11	016-0395-01	Door Insulation Pad	1
12	042-0104-00	Roll Pin	1
13		Door	1
14		Door Bolt	2
15	042-0106-00	Shoulder Screw	2
16	050-3525-00	Latch	1
17	041-0000-00	Nut	1
18	045-0000-00	Lockwasher	1
19		Flange Bearing	2
20	H99387	Aluminum Seal	2
21	H99388-36	Insulation Strap	2
22	053-0385-01	Insulation Wrapper	1
23	016-0131-18	Flanged Bearing	1
24	042-0106-01	Shoulder Screw (Apply Valve Lubricant #064-0002-00])	1
25	064-0014-00	Grease	AR
26	050-5192-00	Latch Lever	1
27	042-0001-23	Roll Pin	2
28	050-2362-00	Spring Arm	1
29	002-0362-00	Door Switch (Includes Item 27)	1
30	042-0001-09	Roll Pin	1
31	040-0008-50	Screw	4
32	050-2011-00	Inside Door Cover	1
33	040-0010-75	Screw	2
34	053-0912-00	Door Handle	1
35	002-0364-00	Ritter M9 Door Panel (Incl. Decals)	1
	002-0364-01	Midmark M9 Door Panel (Incl. Decals)	1
	002-0364-02	EMS M9 Door Panel (Incl. Decals)	1
36	002-0360-00	Filter	1
37	050-2347-00	Door Spring	1
38	045-0000-04	Washer	2

Always Specify Model & Serial Number

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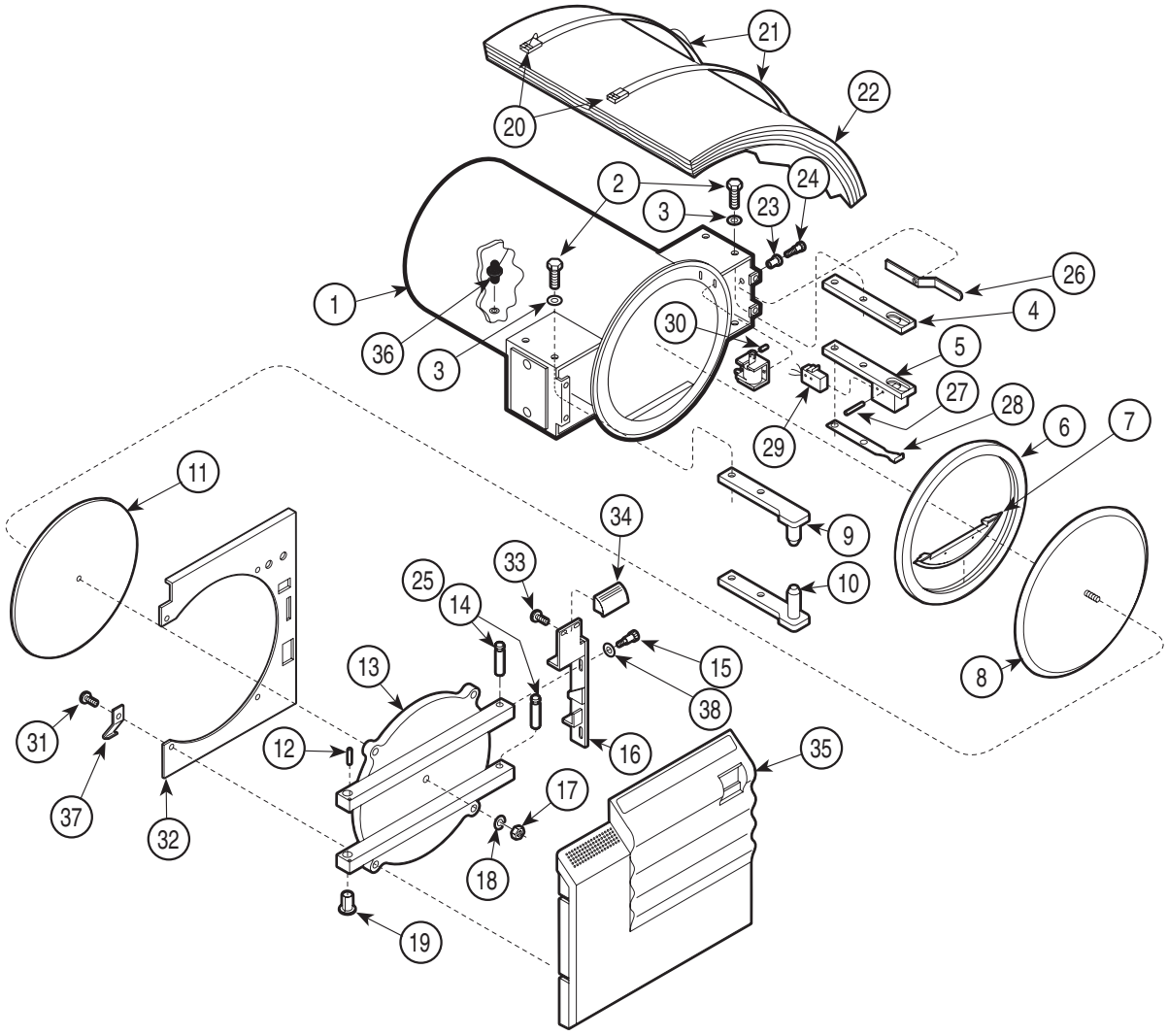
Pressure Vessel Components



MA202012

Used on Units with Serial Numbers: CZ8200, DB1278, DX3007, DY1186, FD2132, FK3225, FL1964, LA1029, and OM21775, thru Present

Item	Part No.	Description	Qty.
1		Chamber	1
2		Screw	8
3		Washer	8
4		Right Bracket	1
5		Switch Weldment	1
6	053-0366-00	Door Gasket (Incl. in 002-0361-01 Kit)	1
7	053-0903-00	Dam Gasket (Incl. in 002-0361-01 Kit)	1
8	030-1016-00	Housing	1
9		Top Bracket	1
10		Bottom Bracket	1
11	016-0395-01	Door Insulation Pad	1
12	042-0104-00	Roll Pin	1
13		Door	1
14		Door Bolt	2
15	042-0106-00	Shoulder Screw	2
16	050-3525-00	Latch	1
17	041-0000-00	Nut	1
18	045-0000-00	Lockwasher	1
19		Flange Bearing	2
20	H99387	Aluminum Seal	2
21	H99388-36	Insulation Strap	2
22	053-0385-01	Insulation Wrapper	1
23	016-0131-18	Flanged Bearing	1
24	042-0106-01	Shoulder Screw (Apply Valve Lubricant #064-0002-00])	1
25	064-0014-00	Grease	AR
26	050-5192-00	Latch Lever	1
27	042-0001-23	Roll Pin	2
28	050-2362-00	Spring Arm	1
29	002-0362-00	Door Switch (Includes Item 27)	1
30	042-0001-09	Roll Pin	1
31	040-0008-50	Screw	4
32	050-2011-00	Inside Door Cover	1
33	040-0010-75	Screw	2
34	053-0912-00	Door Handle	1
35	002-0364-00	Ritter M9 Door Panel (Incl. Decals)	1
	002-0364-01	Midmark M9 Door Panel (Incl. Decals)	1
	002-0364-02	EMS M9 Door Panel (Incl. Decals)	1
36	002-0360-00	Filter	1
37	050-2347-00	Door Spring	1
38	045-0000-04	Washer	2

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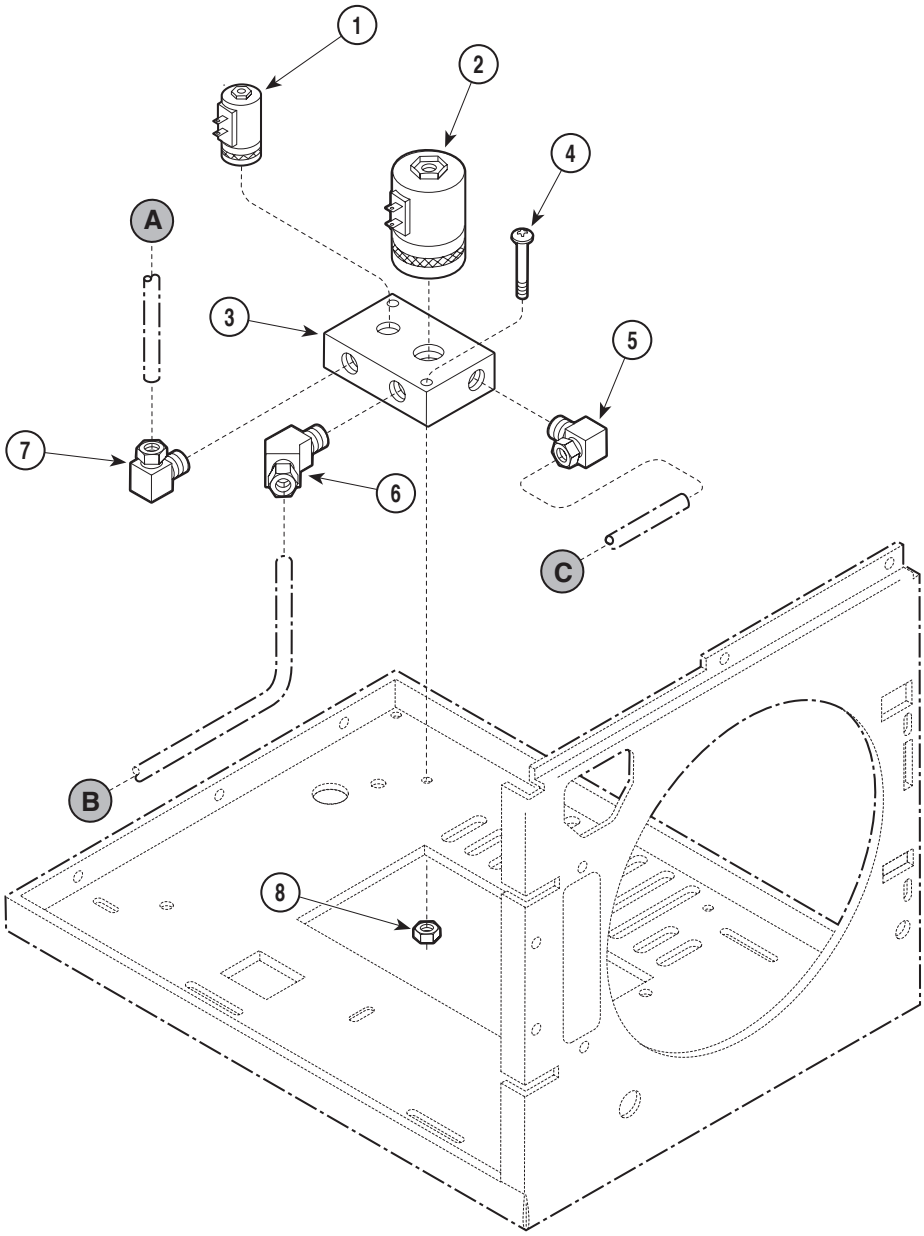
Manifold Components



MA202102

Used on units with Serial Number CZ1000 thru CZ1109

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
1	014-0199-00	Solenoid Valve	1	5	014-0184-01	Male 90° Elbow	1
2	014-0200-00	Solenoid Valve	1	6	014-0201-00	Male 45° Elbow	1
3	014-0198-00	Manifold	1	7	014-0184-00	Male 90° Elbow	1
4	040-0010-53	Screw	2	8	014-0010-04	Nut	2

Always Specify Model & Serial Number

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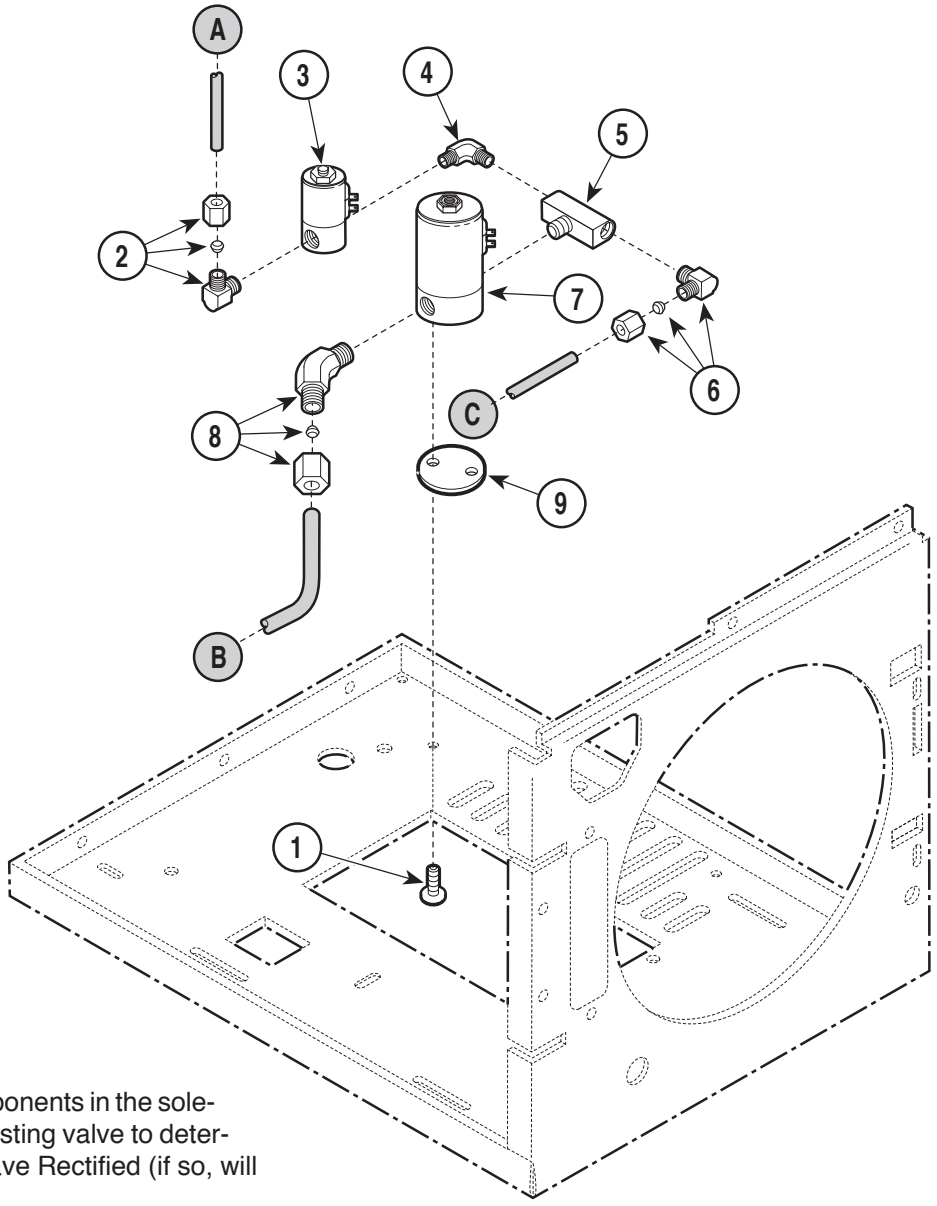
Manifold Components



NOTE
When replacing components in the solenoid, examine the existing valve to determine if it was Full Wave Rectified (if so, will be marked **FWR**).

MA202205

Used on Units with Serial Numbers: CZ1110 thru CZ7236, DA1000 thru DA1006, DB1000 thru DB1272, DX1000 thru DX2906, DY1000 thru DY1182, FD1000 thru FD2104, FK1000 thru FK2324, FL1000 thru FL1963, LA1000 thru LA1028, and OM1000 thru OM20225

Item	Part No.	Description	Qty.
1	040-0010-74	Screw	2
2	014-0184-00	Male 90° Elbow	1
3	002-0366-00	Solenoid Valve {120V/60Hz}	1
	002-0366-01	Solenoid Valve {230V/50Hz}	1
	002-0366-02	Solenoid Valve {100V/50Hz}	1
	• 014-0235-03	• Replacement Coil (120V/60)	1
	• 014-0235-04	• Replacement Plunger	1
4	014-0218-01	Male Elbow	1
5	014-0234-00	Male Branch Tee	1
6	014-0184-01	Male 90° Elbow	1
7	002-0365-00	Solenoid Valve (120V/60Hz)	1
	002-0365-01	Solenoid Valve (230V/50Hz)	1
	002-0365-02	Solenoid Valve (100V/50Hz)	1
	• 014-0236-08	• Replacement Coil (120V/60Hz)	1
	• 014-0236-10	• Replacement Coil (120V/50-60 **FWR**)	1
	• 014-0236-09	• Replmt. Plunger (120V/60Hz)	1
	• 014-0236-11	• Replmt. Plunger (120V/50-60 **FWR**)	1
8	014-0201-00	Male 45° Elbow	1
9	050-2657-00	Spacer	1

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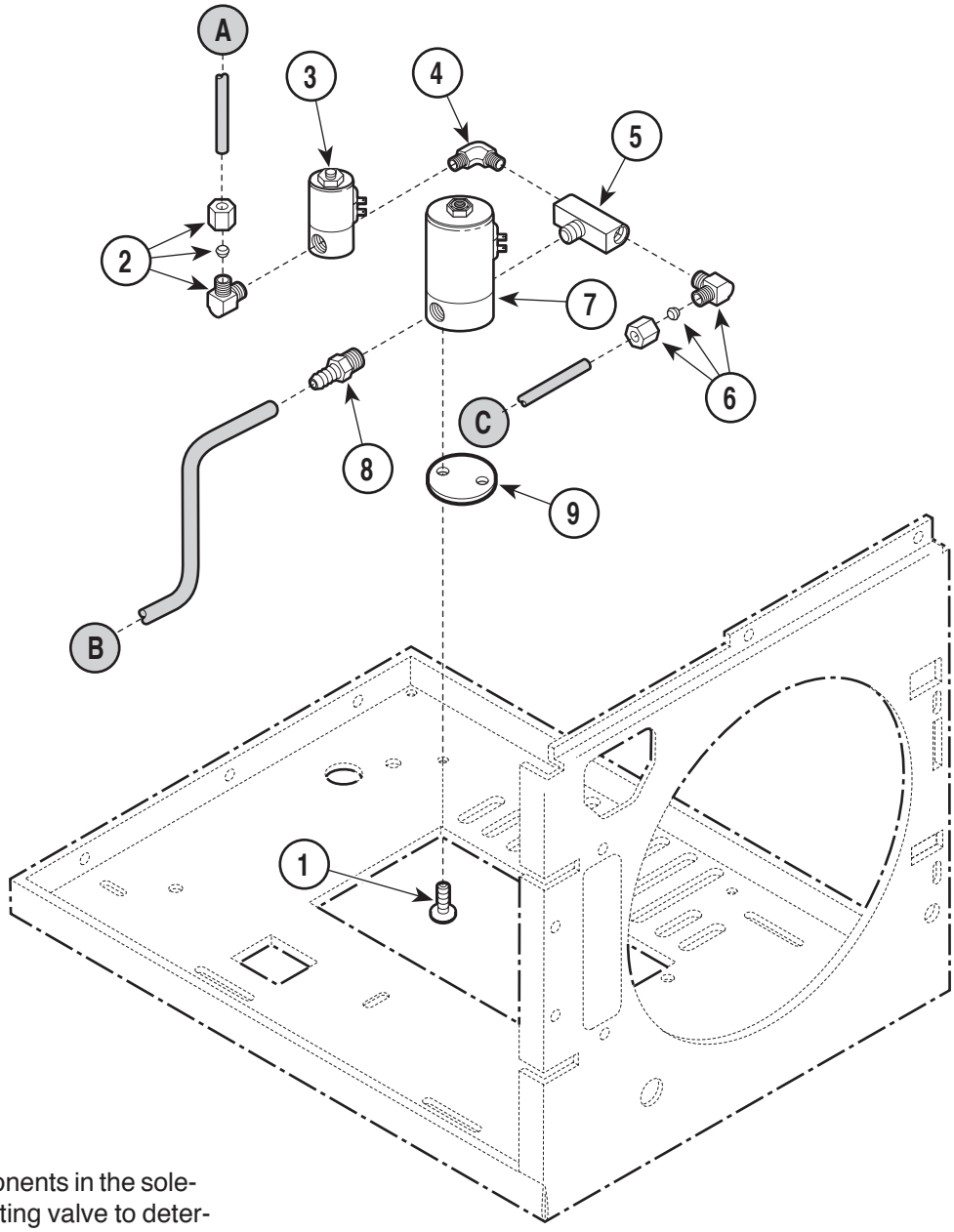
Manifold Components



NOTE

When replacing components in the solenoid, examine the existing valve to determine if it was Full Wave Rectified (if so, will be marked **FWR**).

MA510701

Used on Units with Serial Numbers: CZ7237, DA1007, DB1273, DX2907, DY1183, FD2105, FK2325, FL1964, LA1029, and OM20226, thru Present

Item	Part No.	Description	Qty.
1	040-0010-74	Screw	2
2	014-0184-00	Male 90° Elbow	1
3	002-0366-00	Solenoid Valve {120V/60Hz}	1
	002-0366-01	Solenoid Valve {230V/50Hz}	1
	002-0366-02	Solenoid Valve {100V/50Hz}	1
	• 014-0235-03	• Replacement Coil (120V/60)	1
	• 014-0235-04	• Replacement Plunger	1
4	014-0218-01	Male Elbow	1
5	014-0234-00	Male Branch Tee	1
6	014-0184-01	Male 90° Elbow	1
7	002-0365-00	Solenoid Valve (120V/60Hz)	1
	002-0365-01	Solenoid Valve (230V/50Hz)	1
	002-0365-02	Solenoid Valve (100V/50Hz)	1
	• 014-0236-08	• Replacement Coil (120V/60Hz)	1
	• 014-0236-10	• Replacement Coil (120V/50-60 **FWR**)	1
	• 014-0236-09	• Replmt. Plunger (120V/60Hz)	1
	• 014-0236-11	• Replmt. Plunger (120V/50-60 **FWR**)	1
8	014-0347-00	Barb Fitting	1
9	050-2657-00	Spacer (Used on units with flat base)	1

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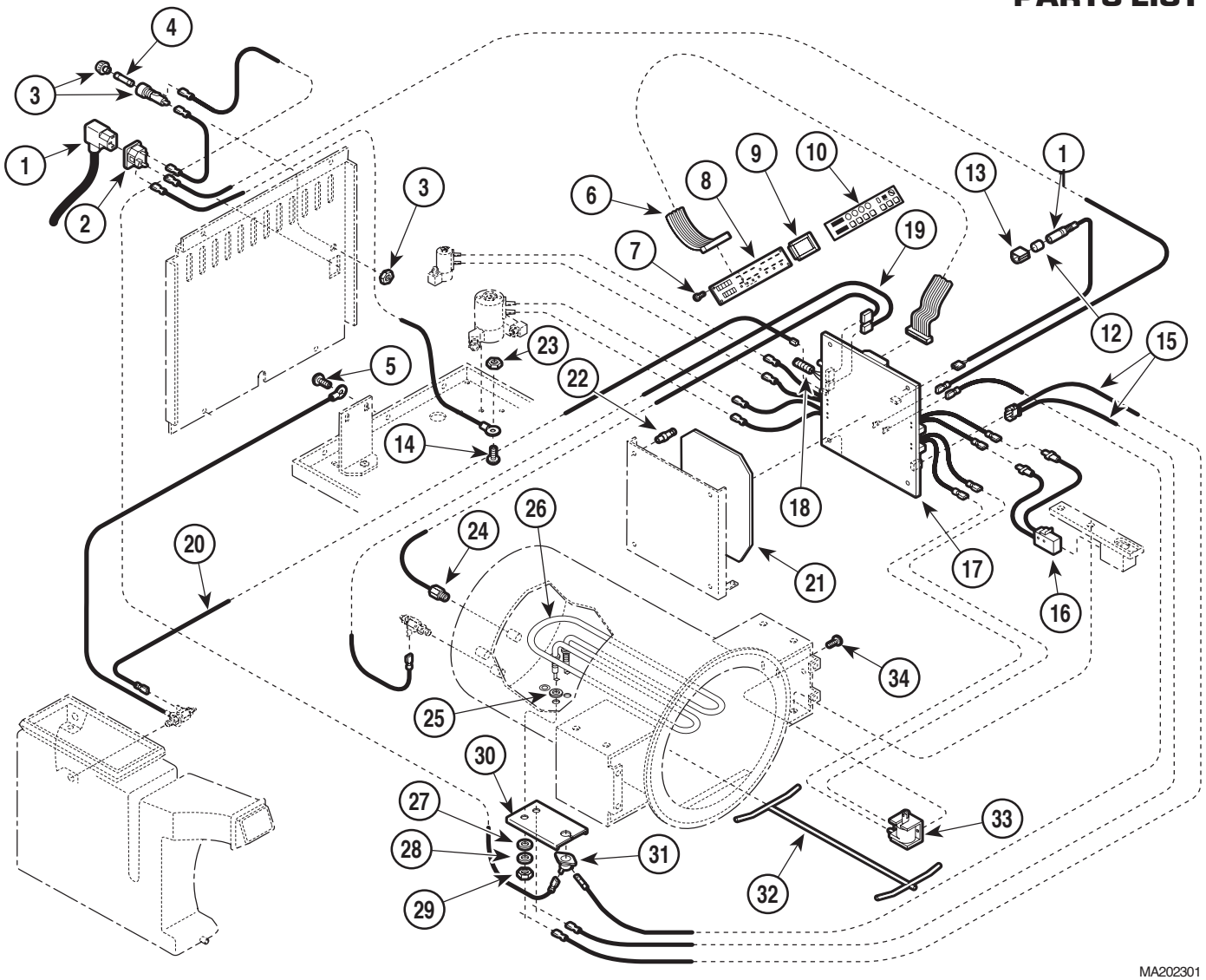
Electrical Components

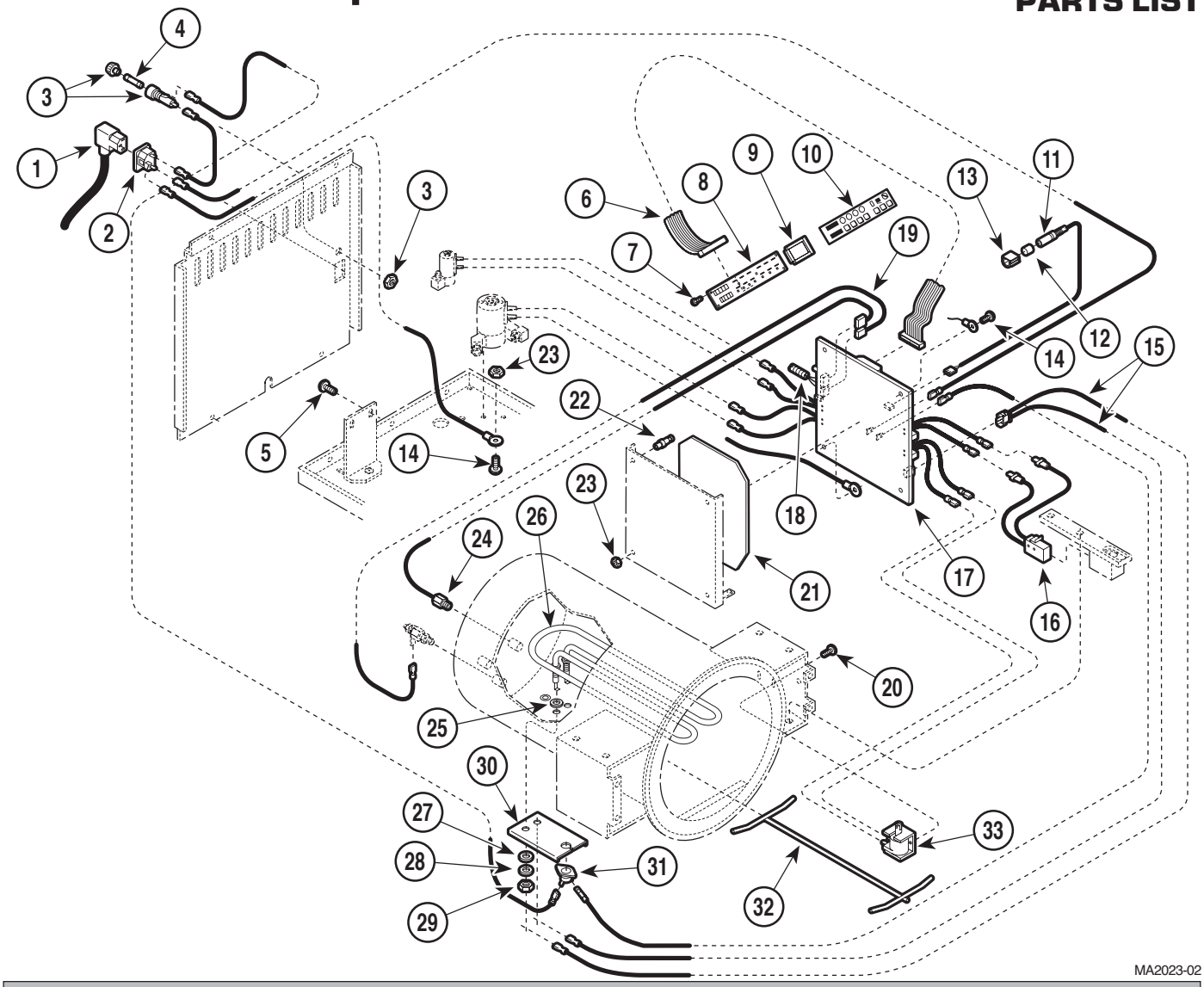


Used on units with Serial Number CZ1000 thru CZ1684, DA1000 thru DA1001, DB1000 thru DB1010, DX1000 thru DX1169, DY1000 thru DY1007 and OM1000 thru OM5130

Item	Part No.	Description	Qty.
1		Cordset (Refer to Wiring Diagram)	1
2	015-0639-00	AC Connector Receptacle	1
3	A128003	Fuse Holder w/Nut (Early Units Only)	1
4		Fuse	1
5	040-0010-75	Screw	1
6	015-0646-00	Ribbon Connector	1
7	040-0006-04	Screw	6
8	002-0369-00	Display PC Board (Domestic)	1
	002-0369-01	Display PC Board (Export)	1
9	053-0454-00	Display Gasket	1
10	061-0272-01	Display Overlay (Domestic)	1
	061-0272-00	Display Overlay (Export)	1
11	015-0978-00	Harness - PCB/Printer	1
12	053-0440-00	Cap Plug	1
13	053-0389-00	Printer Harness Clip	1
14	040-0010-46	Screw	1
15	015-0657-00	PCB/Heater Harness	1
16	002-0362-00	Switch Assembly	1
17		Control PC Board (See Breakdown Elsewhere)	Ref
18	015-0257-02	Flex Guard Tubing	1
19	015-0654-00	Chamber Level Sensor Harness	1
20	015-0655-00	Reservoir Sensor Harness	1
21	053-0455-00	Insulator	1
22	053-0295-01	Standoff	3
23	041-0010-04	Locknut	1
24	002-0357-00	Temperature Probe Assembly	1
25	H98137	Gasket	2
26	002-0367-00	Heat Element-{120V}(Includes Item 25)	1
	002-0367-01	Heat Element-{230V}(Includes Item 25)	1
	002-0367-02	Heat Element-{100V}(Includes Item 25)	1
27	H97971	Washer	2
28	045-0001-56	Lockwasher	2
29	H97949	Nut	2
30	H225617	Bracket	1
31	002-0370-00	Thermostat	1
32	030-0769-00	Spacer Assembly	1
33	002-0363-00	Solenoid-{120V}	1
	002-0363-01	Solenoid-{240V}	1
	002-0363-02	Solenoid-{100V}	1
34	040-0010-74	Screw	2

Always Specify Model & Serial Number

Electrical Components

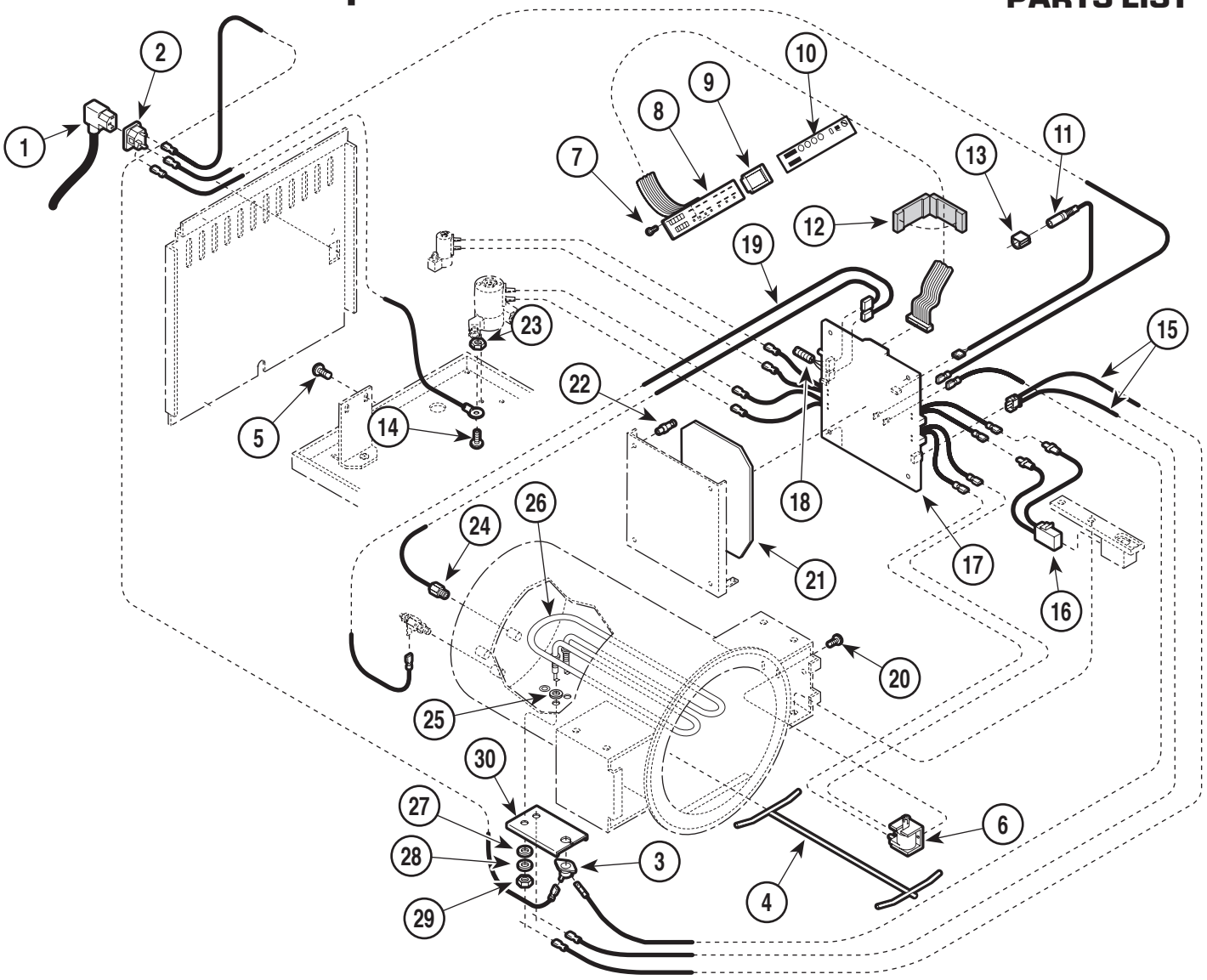


Used on units with Serial Number CZ1685 thru CZ2456, DA1001 thru DA1004, DB1011 thru DB1149, DX1170 thru DX1969, DY1008 thru DY1138 and OM5131 thru OM9448

Item	Part No.	Description	Qty.
1		Cordset (Refer to Wiring Diagram)	1
2	015-0639-00	AC Connector Receptacle	1
3	A128003	Fuse Holder w/Nut (Early Units Only)	1
4		Fuse	1
5	040-0010-75	Screw	1
6	015-0646-00	Ribbon Connector	1
7	040-0006-04	Screw	6
8	002-0369-00	Display PC Board (Domestic)	1
	002-0369-01	Display PC Board (Export)	1
9	053-0454-00	Display Gasket	1
10	061-0272-01	Display Overlay (Domestic)	1
	061-0272-00	Display Overlay (Export)	1
11	015-0978-00	Harness - PCB/Printer	1
12	053-0440-00	Cap Plug	1
13	053-0389-00	Printer Harness Clip	1
14	040-0010-46	Screw	1
15	015-0657-00	PCB/Heater Harness	1
16	002-0362-00	Switch Assembly	1
17		Control PC Board (See Breakdown Elsewhere)	Ref
18	015-0257-02	Flex Guard Tubing	1
19	015-0654-00	Chamber Level Sensor Harness	1
20	040-0010-74	Screw	2
21	053-0455-00	Insulator	1
22	053-0295-01	Standoff	3
23	041-0010-04	Locknut	1
24	002-0357-00	Temperature Probe Assembly	1
25	H98137	Gasket	2
26	002-0367-00	Heat Element-{120V}(Includes Item 25)	1
	002-0367-01	Heat Element-{230V}(Includes Item 25)	1
	002-0367-02	Heat Element-{100V}(Includes Item 25)	1
27	H97971	Washer	2
28	045-0001-56	Lockwasher	2
29	H97949	Nut	2
30	H225617	Bracket	1
31	002-0370-00	Thermostat	1
32	030-0769-00	Spacer Assembly	1
33	002-0363-00	Solenoid-{120V}	1
	002-0363-01	Solenoid-{240V}	1
	002-0363-02	Solenoid-{100V}	1

Always Specify Model & Serial Number

Electrical Components



MA202309

Used on Units with Serial Numbers CZ2457 thru CZ4590, and OM9449 thru OM14723

Item	Part No.	Description	Qty.
1		Cordset (Refer to Wiring Diagram)	1
2	015-0639-00	AC Connector Receptacle	1
3	002-0370-00	Thermostat	1
4	057-0425-00	Spacer Assembly	1
5	040-0010-75	Screw	1
6	002-0363-00	Solenoid-{120V}	1
	002-0363-01	Solenoid-{240V}	1
	002-0363-02	Solenoid-{100V}	1
7	040-0006-04	Screw	6
8	002-0369-02	Display PC Board (Domestic)	1
	002-0369-03	Display PC Board (Export)	1
9	053-0454-00	Display Gasket	1
10	061-0272-01	Display Overlay (Domestic)	1
	061-0272-00	Display Overlay (Export)	1
	061-0272-02	Display Overlay (French)	1
11		PCB/Printer Harness (Refer to "Printer Components" Elsewhere)	1
12	015-1096-00	Flat Cable EMI Suppression (Used Only On Certain Export Units)	1
13	053-0389-01	Printer Harness Clip	1
14	040-0010-46	Screw	1
15	015-0657-00	PCB/Heater Harness	1
16	002-0362-00	Switch Assembly	1
17		Control PC Board (Refer to "Control PC Board" Elsewhere)	Ref
18	015-0257-02	Flex Guard Tubing	1
19	015-0654-00	Chamber Level Sensor Harness	1
20	040-0010-74	Screw	2
21	053-0455-00	Insulator	1
22	053-0295-01	Standoff	3
23	041-0010-04	Locknut	1
24	002-0357-00	Temperature Probe Assembly	1
25	H98137	Gasket	2
26	002-0367-00	Heat Element-{120V}(Includes Item 25)	1
	002-0367-01	Heat Element-{230V}(Includes Item 25)	1
	002-0367-02	Heat Element-{100V}(Includes Item 25)	1
27	H97971	Washer	2
28	045-0001-56	Lockwasher	2
29	H97949	Nut	2
30	H225617	Bracket	1

Always Specify Model & Serial Number

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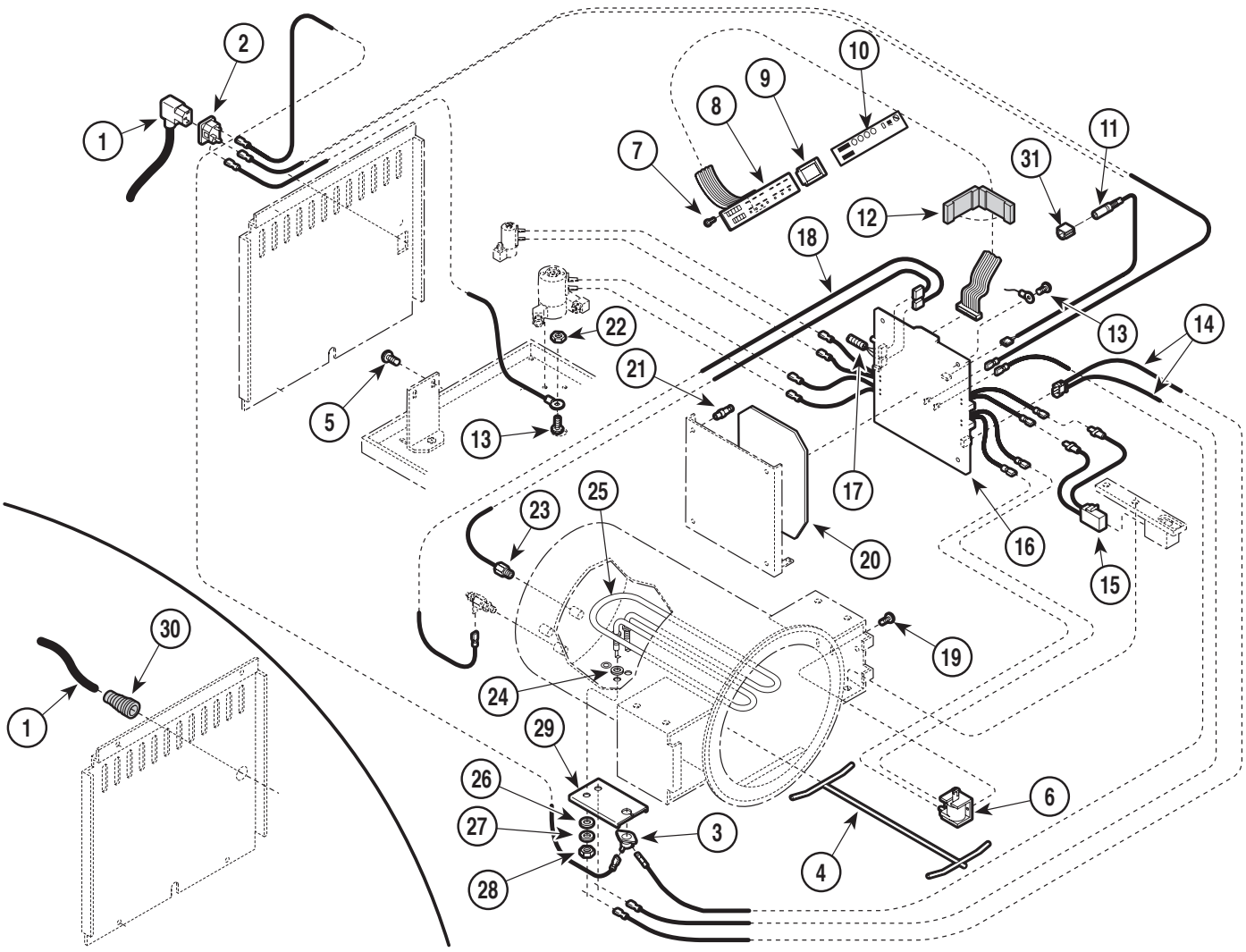


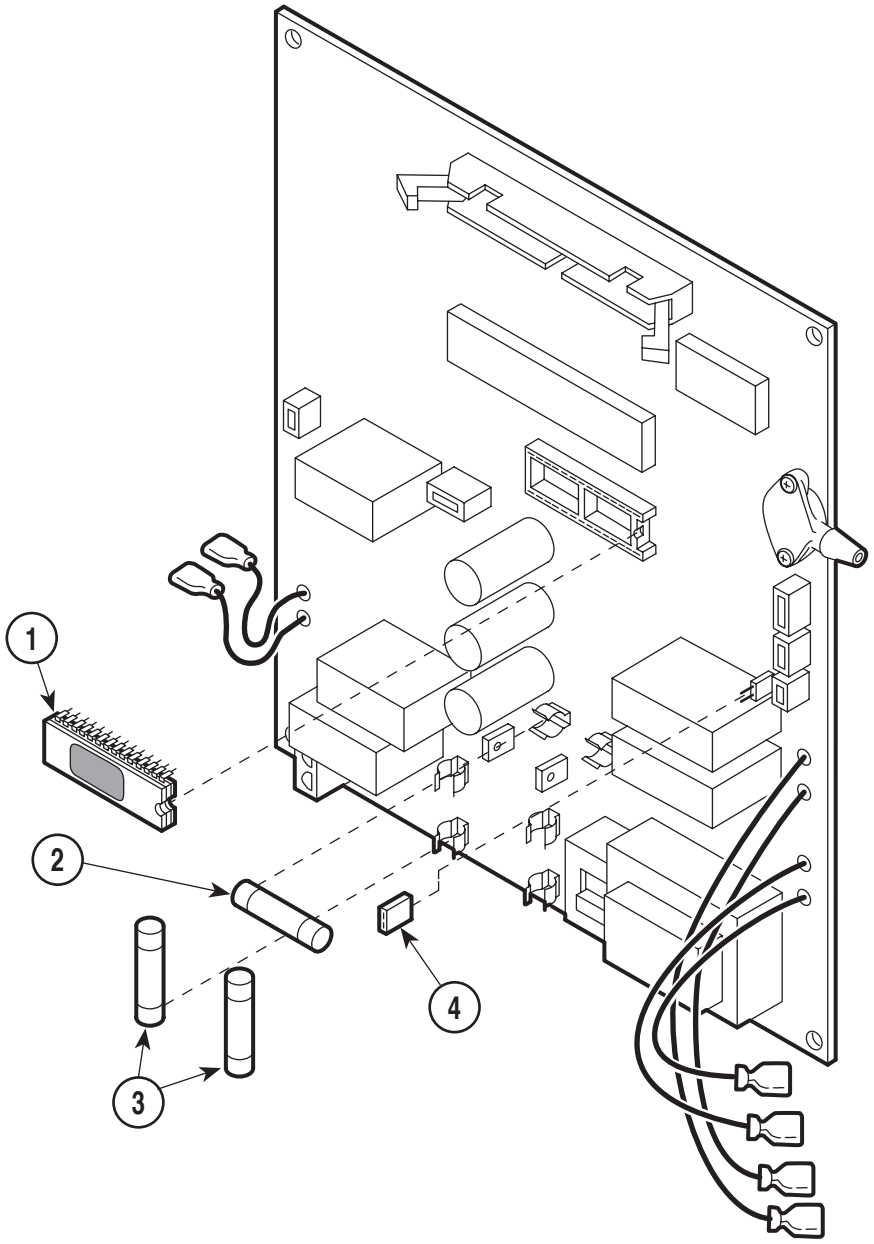
MA376103

Used on Units with Serial Numbers: CZ4591, DA1005, DB1150, DX1970, DY1139, FD1000, FK1000, FL1000, LA1000 and OM14724 thru Present

Item	Part No.	Description	Qty.
1		Cordset (Refer to Wiring Diagram)	1
2	015-0639-00	AC Connector Receptacle	1
3	002-0370-00	Thermostat	1
4	057-0425-00	Spacer Assembly	1
5	040-0010-75	Screw	1
6	002-0363-00	Solenoid-{120V}	1
	002-0363-01	Solenoid-{240V}	1
	002-0363-02	Solenoid-{100V}	1
7	040-0006-04	Screw	6
8	002-0369-02	Display PC Board (Domestic)	1
	002-0369-03	Display PC Board (Export)	1
9	053-0454-00	Display Gasket	1
10	061-0272-01	Display Overlay (Domestic)	1
	061-0272-00	Display Overlay (Export)	1
	061-0272-02	Display Overlay (French)	1
	061-0702-18	Display Overlay (Polish)	1
11		PCB/Printer Harness (Refer to "Printer Components" Elsewhere)	1
12	015-1096-00	Flat Cable EMI Suppression (Used Only On Certain Export Units)	1
13	040-0010-46	Screw	1
14	015-0657-00	PCB/Heater Harness	1
15	002-0362-00	Switch Assembly	1
16		Control PC Board (Refer to "Control PC Board" Elsewhere)	Ref
17	015-0257-02	Flex Guard Tubing	1
18	015-0654-00	Chamber Level Sensor Harness	1
19	040-0010-74	Screw	2
20	053-0455-00	Insulator	1
21	053-0295-01	Standoff	3
22	041-0010-04	Locknut	1
23	002-0357-00	Temperature Probe Assembly	1
24	H98137	Gasket	2
25	002-0367-00	Heat Element-{120V}(Includes Item 25)	1
	002-0367-01	Heat Element-{230V}(Includes Item 25)	1
	002-0367-02	Heat Element-{100V}(Includes Item 25)	1
26	H97971	Washer	2
27	045-0001-56	Lockwasher	2
28	H97949	Nut	2
29	050-3503-00	Bracket	1
30	015-1137-00	Strain Relief Bushing (120 V. Units Only)	1
31	053-0389-01	Printer Harness Clip	1

Always Specify Model & Serial Number

Control PC Board



MA2220-01

Used on units with Serial Number CZ1000 thru CZ2456, DA1000 thru DA1004, DB1000 thru DB1149, DX1000 thru DX1969, DY1000 thru DY1138 and OM1000 thru OM9448

Item	Part No.	Description	Qty.
	002-0434-00	Control PC Board {115 V Domestic} (Includes Item 1thru 3)	1
	002-0434-04	Control PC Board {230 V Export} (Includes Item 1 thru 3)	1
	002-0434-05	Control PC Board {100 V Export} (Includes Item 1 thru 4)	1
1	•	• M9 EPROM	Ref
2	• 015-0346-08	• Printer Fuse (3 amp/250 V)	1
3	• 015-0346-07	• Line Fuse (15 amp/250 V) {Used on 115 V Domestic Units Only}	2
	• 015-0346-11	• Line Fuse (8 amp/250 V) {Used on 230 V Export Units Only}	2
	• 015-0346-06	• Line Fuse (20 amp/250 V) {Used on 100 V Export Units Only}	2
4	• 015-0880-00	• 2 Position Jumper {Used on 230 V & 100 V Export Units Only}	1

Always Specify Model & Serial Number

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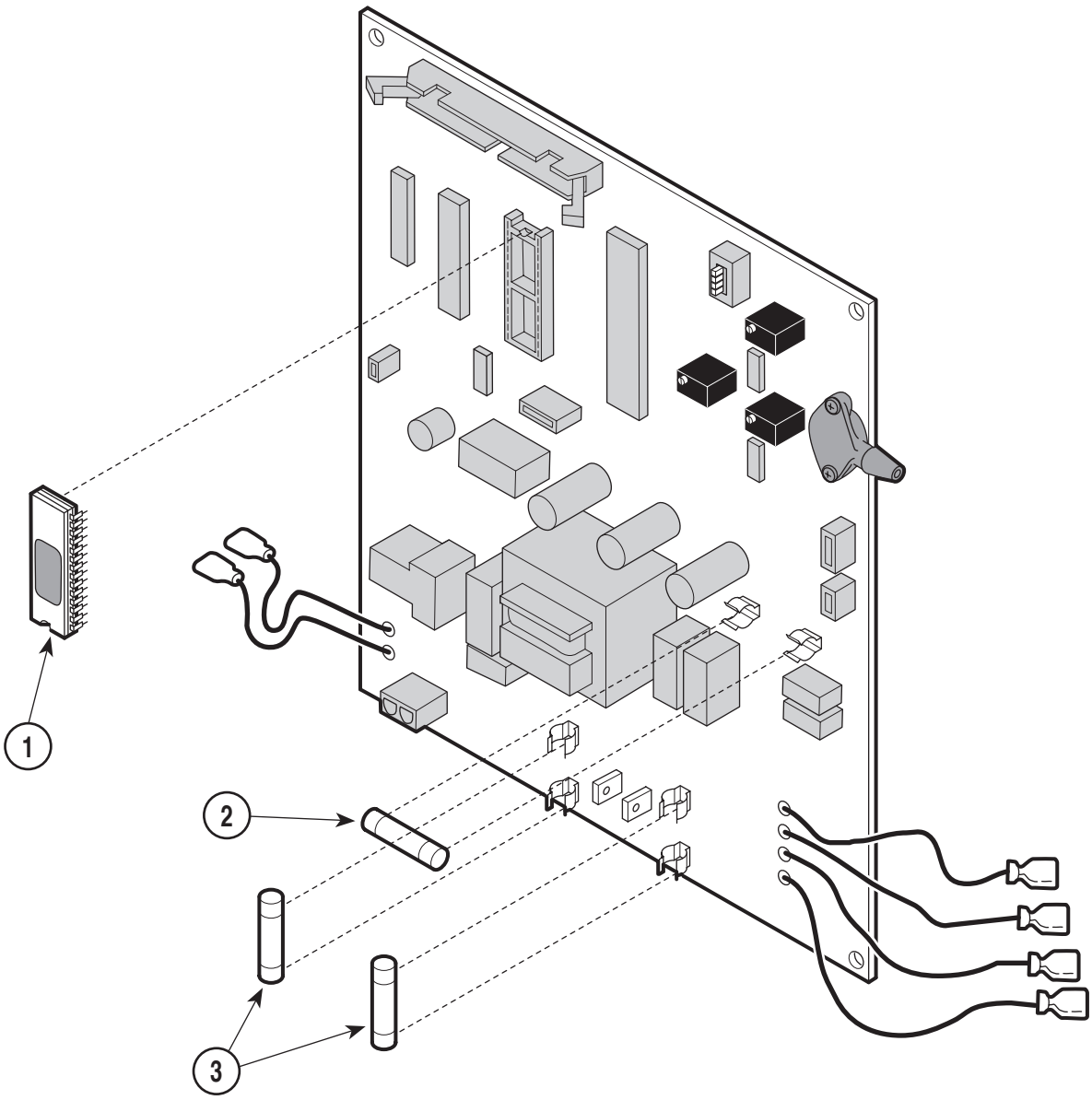
Control PC Board



MA281100

Used on Units with Serial Number FD1000 thru FD1399

Item	Part No.	Description	Qty.
	002-0434-04	Control PC Board {230 V. French Export} (Includes Item 1thru 3)	1
1	•	• M9 EPROM	Ref
2	• 015-0346-08	• Printer Fuse (3 amp / 250 V.)	1
3	• 015-0346-11	• Line Fuse (8 amp / 250 V) {Used on 230 V Export Units Only}	2

Always Specify Model & Serial Number

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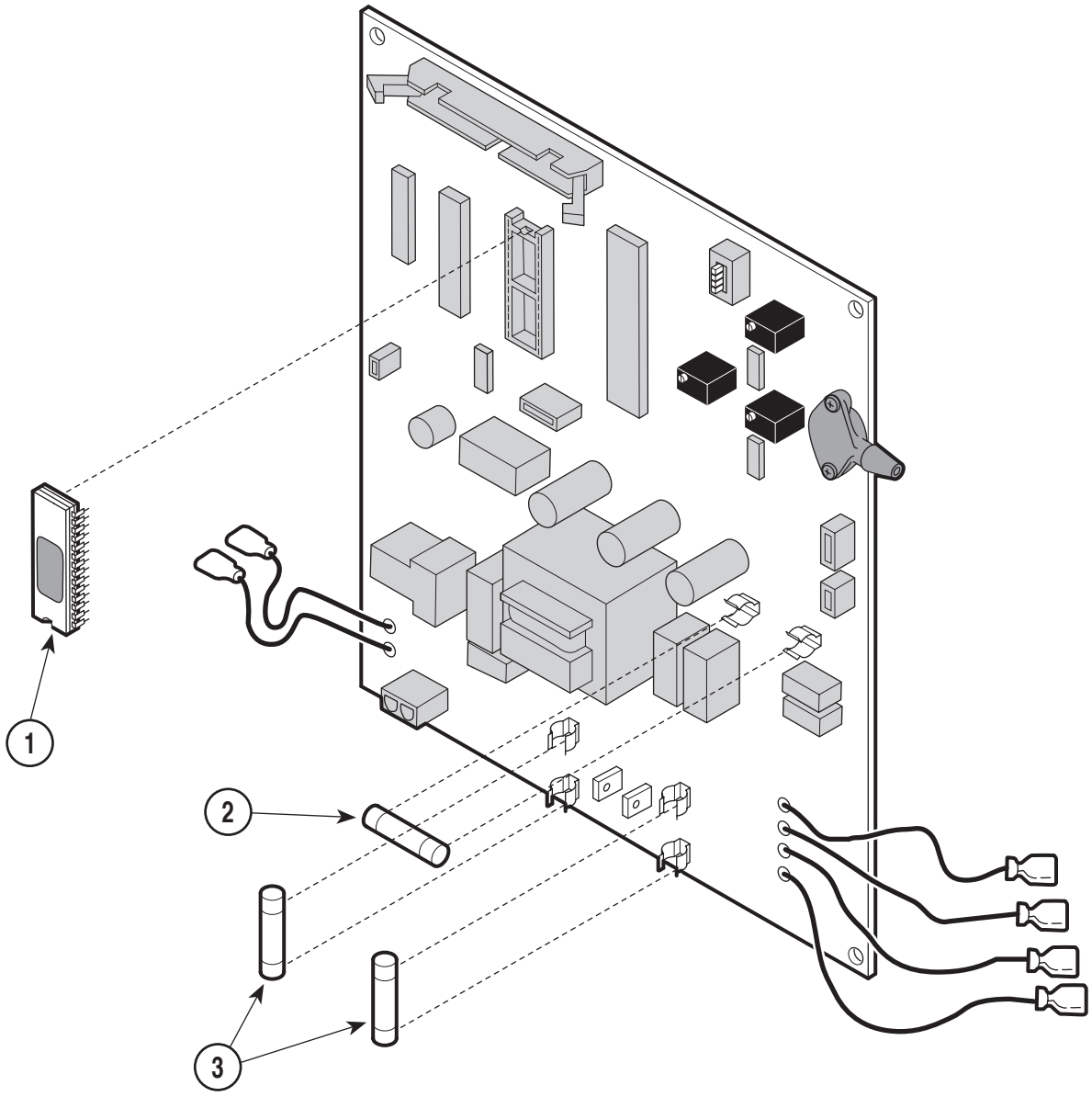
Control PC Board



MA281100

Used on units with Serial Number CZ2457, DA1005, DB1150, DX1970, DY1139, FD1400, FK1000, FL1000, LA1000 and OM9449 thru Present

Item	Part No.	Description	Qty.
	002-0434-03	Control PC Board {115 V Domestic} (Includes Item 1thru 3)	1
	002-0434-06	Control PC Board {230 V French Export} (Includes Item 1 thru 3)	1
	002-0434-04	Control PC Board {230 V Export} (Includes Item 1 thru 3)	1
	002-0434-05	Control PC Board {100 V Export} (Includes Item 1 thru 4)	1
1	•	• M9 EPROM	Ref
2	• 015-0346-08	• Printer Fuse (3 amp/250 V)	1
3	• 015-0346-07	• Line Fuse (15 amp/250 V) {Used on 115 V Domestic Units Only}	2
	• 015-0346-11	• Line Fuse (8 amp/250 V) {Used on 230 V Export Units Only}	2
	• 015-0346-06	• Line Fuse (20 amp/250 V) {Used on 100 V Export Units Only}	2

Always Specify Model & Serial Number

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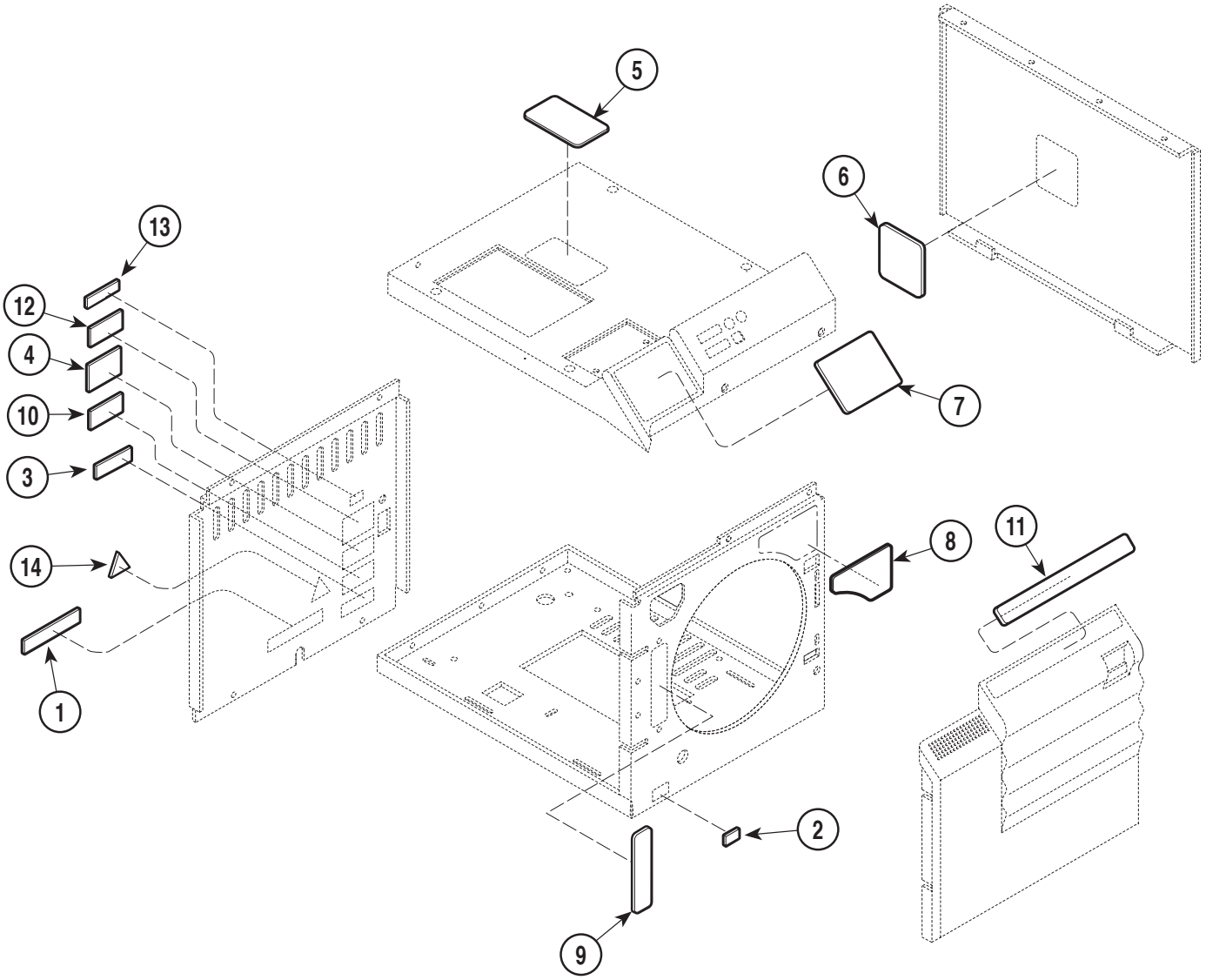
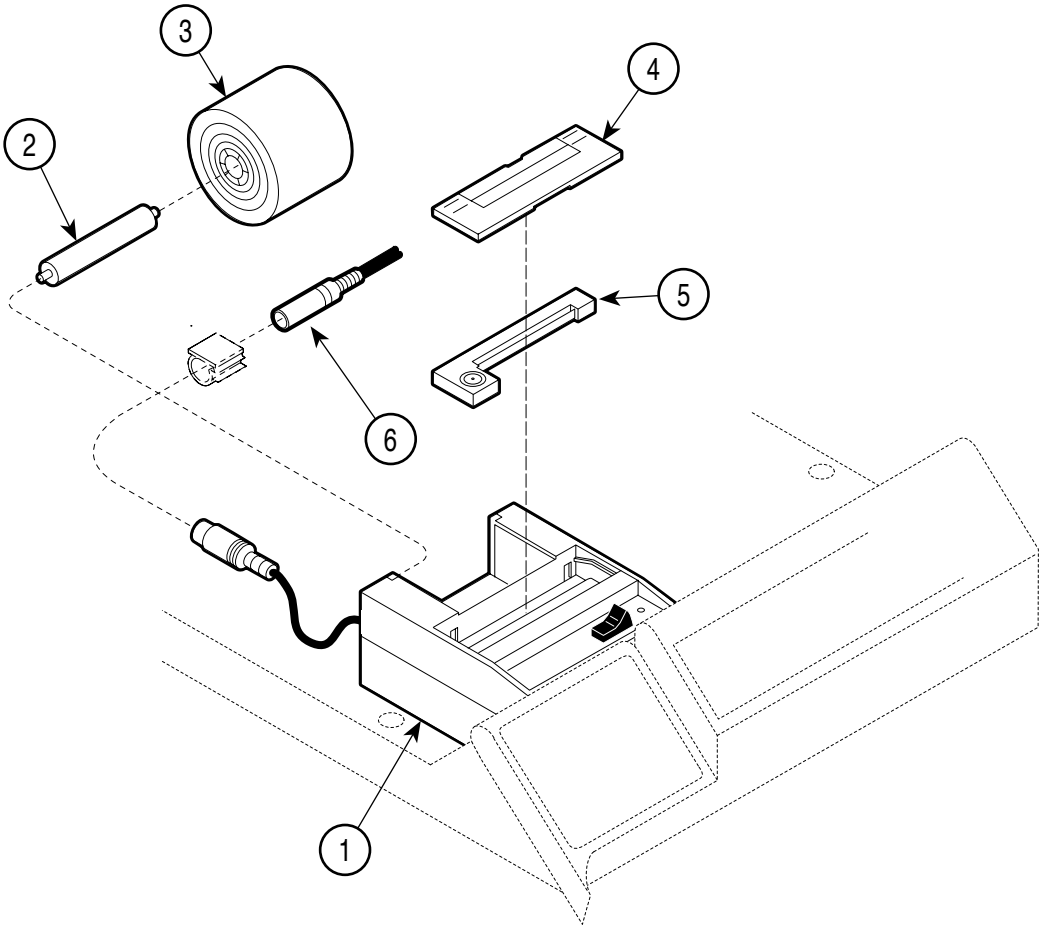


MA202509

Item	Part No.	Description	Qty.
1	061-0203-00	Label - Electrical Shock (English)	1
	061-0516-00	Label -Electrical Shock (French)	1
	061-0600-00	Label -Electrical Shock (Portuguese)	1
2		Label - Serial Number (Front)	1
3	061-0477-00	Label - Patent	1
4		Label - Serial Number (Rear)	1
5	061-0309-00	Label - Warning, P.R. Valve (English)	1
	061-0514-00	Label - Warning, P.R. Valve (French)	1
	061-0597-00	Label - Warning, P.R. Valve (Portuguese)	1
	061-0704-18	Label - Warning, P.R. Valve (Polish)	1
6	061-0524-00	Wiring Diagram Label{120V}	1
	061-0525-00	Wiring Diagram Label{230V}	1
	061-0526-00	Wiring Diagram Label{100V}	1
7	061-0381-00	Label - Warning (English)	1
	061-0512-00	Label - Warning (French)	1
	061-0595-00	Label - Warning (Portuguese)	1
	061-0381-18	Label - Warning (Polish)	1
8	061-0591-00	Label - Caution / Hot (English)	1
	061-0515-00	Label - Caution / Hot (French)	1
	061-0592-00	Label - Caution / Hot (Portuguese)	1
	061-0591-18	Label - Caution / Hot (Polish)	1
9	061-0311-00	Label - Water Level	1
10	061-0624-00	UL / CUL 507U Label (Used on select units only)	1
11	061-0441-00	Label - Operation (English)	1
	061-0441-18	Label - Operation (Polish)	1
	061-0513-00	Label - Operation (French)	1
	061-0596-00	Label - Operation (Portuguese)	1
12	061-0782-00	CE Representative Label (Used on select units only)	1
13	061-0733-00	CE Label (Used on select units only)	1
14	061-0654-01	Label - Caution (Select units only)	1
15	004-0068-00	Laminated Instruction Sheet (Not Shown)	1

Always Specify Model & Serial Number

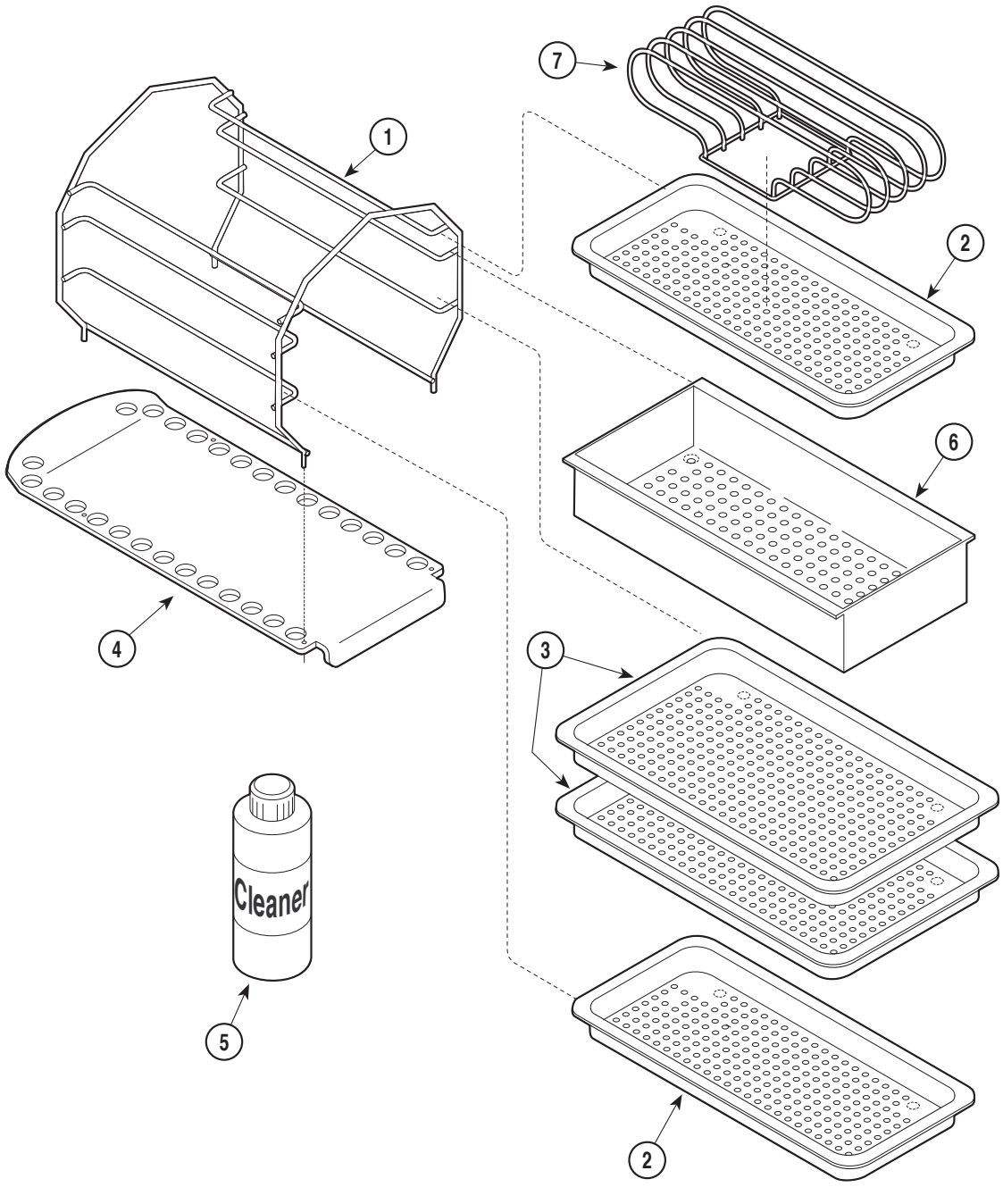


MA203302

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
1	9A155001	Accessory Printer (Incl. Items 2 thru 6) .	1	5	• 053-0505-00	• Printer Cartridge	1
2	• 053-0506-00	• Arbor	1	6	• 015-0978-00	• Printer Wiring Harness	1
3	• 060-0008-00	• Paper Roll	1	7	002-0371-00	Cartridge/Paper Kit (Includes Two Rolls of Paper and One Cartridge	1
4	• 053-0507-00	• Cover	1				

Always Specify Model & Serial Number

Racks, Trays, and Cleaner



MA203201

Used on Units with Serial Numbers: CZ1000 thru CZ4334, DA1000 thru DA1004, DB1000 thru DB1237, DX1000 thru DX2555, DY1000 thru DY1176, FD1000 thru FD1399, FK1000 thru FK1699, FL1000 thru FL1474 and OM1000 thru OM14524

Item	Part No.	Description	Qty.
1	030-0710-01	Wire Tray Rack	1
2	002-0253-00	5" Tray	2
3	002-0374-00	7" Tray	2
4	050-1773-00	Tray Plate	1
5	002-0269-00	Sterilizer Cleaner-Ritter (Single Bottle with M.S.D.Sheet)	AR
	002-0269-01	Sterilizer Cleaner-Ritter (12 Bottle Case with M.S.D.Sheet)	AR
	002-0396-00	Sterilizer Cleaner-Midmark (Single Bottle with M.S.D.Sheet)	AR
	002-0396-01	Sterilizer Cleaner-Midmark (12 Bottle Case with M.S.D.Sheet)	AR
6	9A224001	Sterilizer Deep Tray	1
7	9A226001	Sterilizer Pouch Rack	1

Always Specify Model & Serial Number

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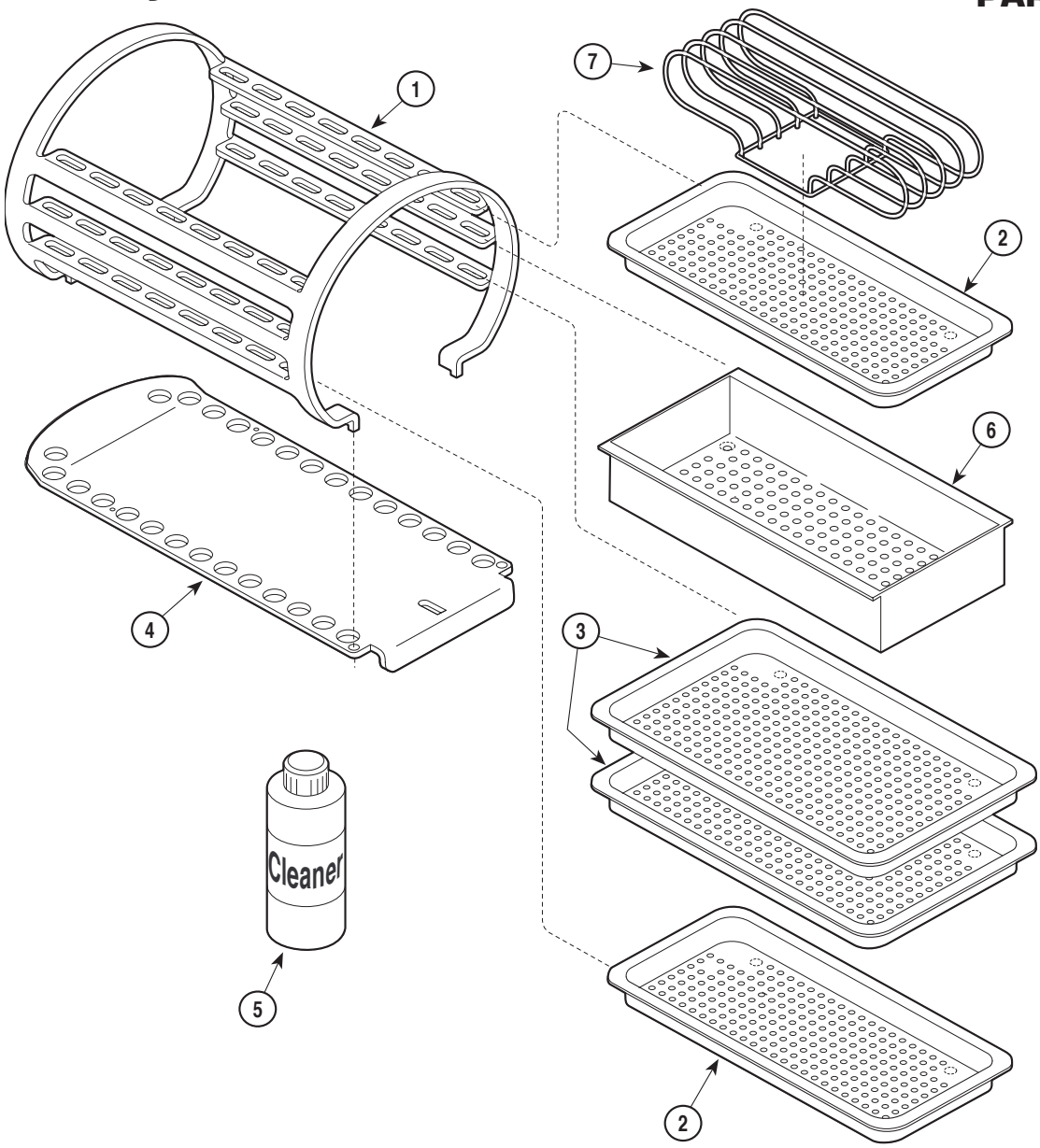
Racks, Trays, and Cleaner



MA376300

Used on units with Serial Number CZ4335, DA1005, DB1238, DX2556, DY1177, FD1400, FK1700, FL1475, LA1000 and OM14525 thru Present

Item	Part No.	Description	Qty.
1	050-3691-00	Wire Tray Rack	1
2	002-0253-00	5" Tray	2
3	002-0374-00	7" Tray	2
4	050-3750-00	Tray Plate	1
5	002-0269-00	Sterilizer Cleaner-Ritter (Single Bottle with M.S.D.Sheet)	AR
	002-0269-01	Sterilizer Cleaner-Ritter (12 Bottle Case with M.S.D.Sheet)	AR
	002-0396-00	Sterilizer Cleaner-Midmark (Single Bottle with M.S.D.Sheet)	AR
	002-0396-01	Sterilizer Cleaner-Midmark ([12] 16 oz. Bottle Case with M.S.D.Sheet)	AR
	002-0396-02	Sterilizer Cleaner-Midmark ([32] 16 oz. Bottle Case with M.S.D.Sheet)	AR
	002-0396-03	Sterilizer Cleaner-EMS ([32] 16 oz. Bottle Case with M.S.D.Sheet)	AR
6	9A224001	Sterilizer Deep Tray	1
7	9A226001	Sterilizer Pouch Rack	1

Always Specify Model & Serial Number

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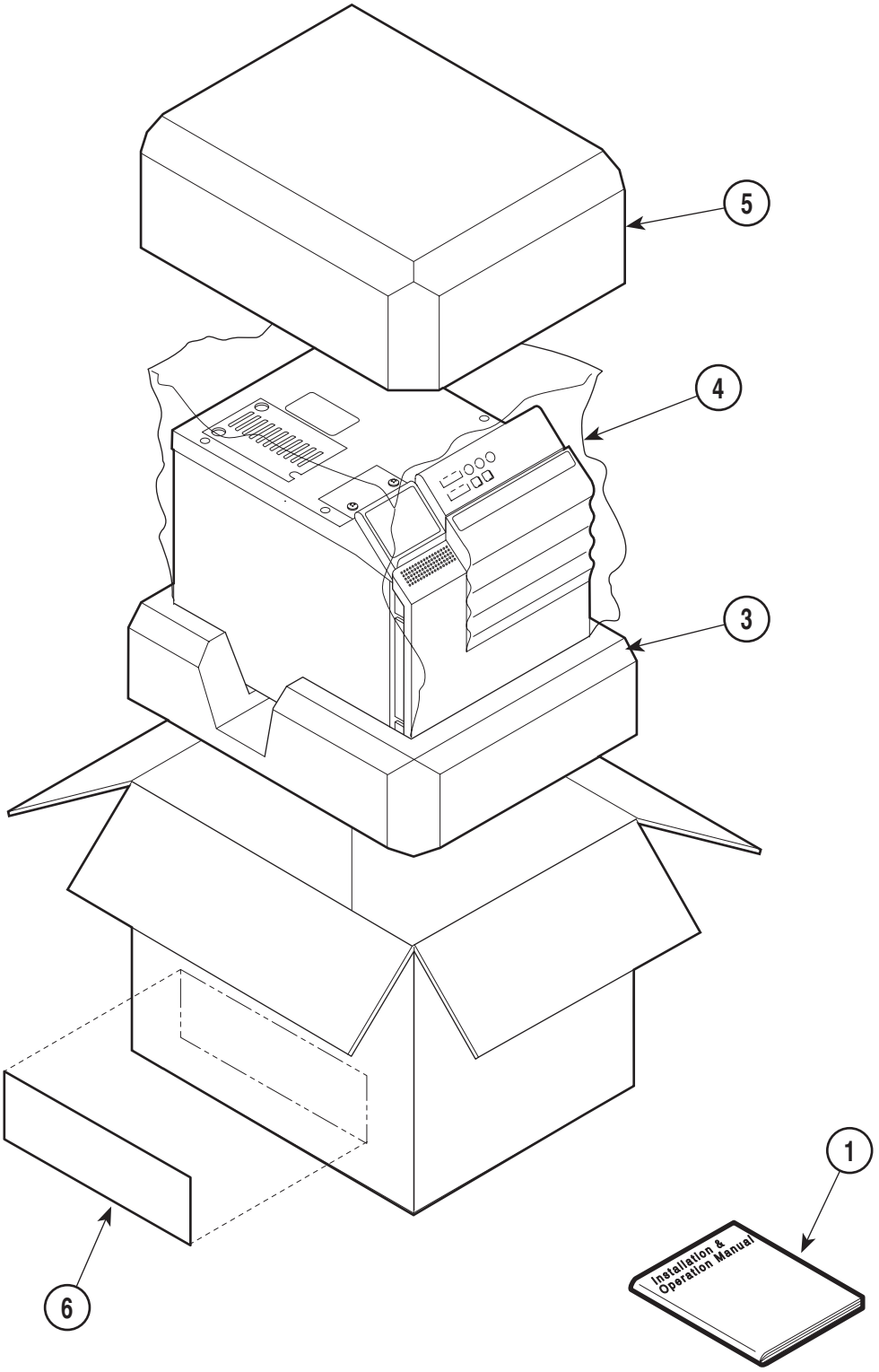

MA202403

Item	Part No.	Description	Qty.
1	003-1031-00	M9 Installation & Operation Manual (English)	1
	003-0920-02	M9 Installation & Operation Manual (French)	1
	003-0920-18	M9 Installation & Operation Manual (Polish)	1
2	066-0721-00	Slotted Carton	1
3	054-0217-00	Bottom Pad	1
4	053-0061-01	Poly Bag	1
5	054-0216-00	Top Pad	1
6	061-0719-00	Label, Midmark	2
	061-0719-01	Label, Ritter	2
	061-0719-02	Label, EMS	2

Always Specify Model & Serial Number

SECTION VI
PARTS LIST

COMMENTS

The Technical Publications Department of Midmark Corporation takes pride in its publications. We are sure that our manuals will fill all of your needs when you are performing scheduled maintenance, servicing, or repairs on a Midmark product.

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FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- **ALL BLOCKED AREAS MUST BE COMPLETED.**
- **USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).**
- **ORDER MUST MEET $35.00 MINIMUM.**

SHADED AREAS TO BE FILLED OUT BY MIDMARK PERSONNEL ONLY.

REP #: _____ **DISCOUNT %:** _____ **DATE:** _____

CAT #: _____ **TECHNICIAN:** _____ **TIME:** _____

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: _____ **P.O. #:** _____ **DATE:** _____

NAME: _____ **SHIP TO:** _____

ADDRESS: _____

CITY, ST.: _____

CONTACT: _____

PHONE: _____

☐ **NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.**

☐ **EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:30 P.M. E.S.T).**

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: _____

METHOD OF SHIPMENT **OTHER** _____

UPS	FED EX
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.
☐ NEXT DAY P.M.	☐ NEXT DAY SAVER
☐ 2ND DAY	☐ 2ND DAY
☐ GROUND	☐ ECONOMY

FA ___
ADD ___

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER
	SPECIAL CODES:		**TOTAL COST: $**	

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