

Mini-Duper™ 1.5 Gallon Duplicator

Hydrocolloid Conditioner

Special Features

- Water jacket prevents overheating
- Heated pouring spout
- Efficient holding cycle
- Digital Controls
- Fully-Automatic
- Computer Controlled

Specifications

Description: Mini-Duper 1.5 Duplicator
Part #: 40611
Capacity: 1.5 Gallons (5.7 Liters)
Electrical: 110 Volt, 50/60 Hz
Height: 24" (61 cm)
Width: 17.3" (44 cm)
Depth: 14" (36 cm)
Shipping Weight: 86 Lbs (39 Kg)



Owner's Manual

Congratulations!

You have just purchased a quality piece of CMP Dental Laboratory Equipment. It has been carefully quality-controlled and thoroughly tested for optimum performance and durability.

If you have any questions regarding CMP's quality line of dental laboratory equipment and supplies, please call toll-free: 800-833-2343 or 518-434-3147 (Fax: 518-434-1288) between the hours of 8:00 AM and 4:30 PM Eastern Time. Or, if you prefer, visit us at our web site: www.cmpindustries.com . . . we will be pleased to assist you.

This manual may be available in other languages. Please check our website.

It is important to thoroughly review this manual and test your new duplicator prior to loading with duplicating material.

I. Receiving & Unpacking

We have made every effort to test your equipment and inspect it for damages prior to packing for shipment. However, once the shipping company accepts the equipment, the responsibility becomes theirs for its safe and undamaged delivery.

When you unpack your shipment, keep all the packing materials until you are confident that the equipment is in good working condition and functions properly. If there is any concealed damage, the carrier may need to examine the container when a claim is filed.

If there is damage, the carrier should be contacted as soon as possible. The claim for damages must be filed with the carrier. We are not in a position to assist you with replacement, repair or warranty issues until the carrier has completed their investigation.

If no damage has been found, place the duplicator on a level bench where it will be used. It is best to locate the unit adjacent to the area where the duplicate models will be cooled.

II. Electrical Connection

The Mini-Dupe duplicator requires a standard 115V–60 Hz outlet to operate. Before plugging-in the duplicator, be sure to identify the electrical specifications of the outlet. A separate circuit should be used as the Mini-Dupe duplicator draws about 12 amps at 115 volts. As with any electrical device, take extra care when handling liquids around electrical connections to avoid accidental shock.

Carefully read and follow the instructions and the next section prior to actually plugging-in the duplicator. Be sure to read the Warnings & Precautions on Page 6

III. Testing & Inspection

This is a very important step in the installation of your new Mini-Dupe duplicator. Even though your unit was fully tested and inspected before leaving our factory, it may have suffered damage during transit. For this reason the following testing and inspection steps are very important.

Note: *The parts list located in the back of this manual will help in the proper identification of the items described below.*

1. Make sure that the duplicator is unplugged, then remove the rear panel and inspect internal components visually. Look for loose connections and parts..
2. Replace rear panel after inspection.
3. Remove the top lids and check inside the tank to be sure there are no interferences with the stirrer. Make sure the stirrer blades are securely bolted to the shaft of the stirrer.
4. Check to be sure the duplicator's identification plate voltage agrees with electrical voltage of the outlet. If these two items are compatible, plug duplicator into the electrical outlet.
5. Open the outer lid and fill the water jacket with tap water fill the chamber half full. Turn on the power to the machine then continue to fill the chamber with water. Fill above the top sensor. When the machine is turned on you should hear a beeping sound until the top sensor is covered with water. Do not overfill as the water level should be below the water mark.

If the machine continues to beep once filled with water, repeat this step, and press the reset button before refilling the tank. **NEVER turn on the machine without water in the water jacket.** Check the water level regularly and add water when needed. The machine will beep if the water level is too low when the machine is turned on.

6. Flip the main power switch to the On (O) position.

7. Press the Heat button (see Figure A) (the heat indicator light should illuminate). The duplicating material will heat to the Cook-Down temperature of 195°F (91°C) and then the temperature will gradually be reduced to 133°F (56°C). When it reaches this lower temperature, the duplicator will automatically start mixing.



(Figure A)

8. Press the Maintain (see Figure A) button at any time. When the Maintain indicator is on, the machine will keep the temperature at the Hold point of 133°F (56°C). When the Heat Maintain indicator is off, the machine is not heating.

9. Press the Mix button when the Heat and Heat Maintain functions are off. The mix indicator will illuminate the motor will start working.

10. Open the outlet valve to dispense duplicating material from the tank.

11. If the machine will not be used for an extended time, drain colloid from the machine, turn-off the power and unplug the unit. Clean all colloid residues from the machine and tank.

12. If the duplicating gel in the tank solidifies (due to power outage), remove the chunk, and cut the material into small cubes before restarting the cook-down process.

13. Press the Heat button again when the heating process is finished, the power indicator should be off which indicates this process is completed.

IV. Colloid Loading & Cook-Down

1. Fill duplicator with 1.5 Gallons (5.7 Liters) of reversible colloid material. **Do not fill the tank more than 2/3 full initially.** To maximize the volume of material in the tank, wait 5 minutes after cook-down begins, then remove the top covers and add remaining material until the tank is full. Make sure to add any liquid that may be in the bottom of colloid container. This is important to maximize colloid life! The liquid contains ingredients which help preserve the colloid. Water in the liquid makes up for evaporation lost in the heating process. Replace top covers.

Note: Colloid material must be chopped into small 2" (5 cm) chunks. Using larger chunks of material may cause a failure in the stirrer mechanism.

2. Press the **Heat** button on the front display panel.

3. The stirring motor will start. The temperature or set point will be displayed as shown in figure A.

Please follow these procedures when storing used material that will be re-melted.

V. Operation

Colloid Storage

1. After removing the colloid from the duplicating flask, rinse with water to remove any foreign material clinging to the colloid. Pieces of gypsum or investment that remain in the colloid can permanently damage the tank and/or stirrer, as they will be dragged around inside the tank during the cook-down cycle.
2. Gently shake-off excess water.
3. Store colloid in a clean, covered container. Keep container covered so moisture is not lost.
4. When ready to cook-down, cut colloid molds in small 2" (5 cm) chunks.
5. If re-melted colloid is difficult to dispense due to high viscosity, add a small amount of water until the viscosity is reduced. It is recommended adding ½ cup per gallon of colloid.

Changing Duplicating Material

When the tank is virtually empty, press the Green Power button on the front panel to turn-off the duplicator.

Preventive Maintenance & Cleaning

1. Clean Mini-Dupe Duplicator approximately once a month or when new duplicating material is added. Your frequency of cleaning may vary with usage. Scrub inside wall of tank and cover assembly with a non-abrasive pot scrubber.
2. Inspect stirrer for wear and distortion. Clean with non-abrasive pot scrubber.

3. Inspect bearings and seal, as wear in these areas can be caused by the introduction of foreign matter (example: small pieces of stone or investment) during the duplicating process.

4. *Be very careful not to spill liquids on the duplicator!* Liquids can damage the control panel and circuit boards. If a spill occurs, unplug the duplicator immediately clean the spill thoroughly, it may be necessary to remove panels and dry the area with clean uncontaminated compressed air. Allow the affected area to completely dry before restarting the machine.

Calibration

Calibration of the Mini-Dupe duplicator is not necessary. The computer controller is self-calibrating.

VI. Settings

Use cook-down and hold temperatures as recommended by the manufacturer of the colloid material. The machine has a phantom button used to adjust the cookdown and hold temperatures. (See Figure B) If manufacturer recommended specifications for the colloid to be used are unavailable, follow these steps:

Cook-Down Temperature

Start with Cook-Down temperature of 195°F (91°C). If the colloid is fully melted after 30 minutes, then reduce the cook-down temperature by increments of 2°F (1°C). Continue the process until the colloid is not fully melted. Use the lowest cook-down temperature that will yield usable material in order to maximize colloid life.



(Figure B)

VI. Settings *Continued*

Hold Temperature

Start with a Hold Temperature of 136°F (58°C) then gradually lower the hold temperature as performed above. Use the lowest hold temperature that will yield usable material in order to maximize colloid life.

VII. Warnings & Precautions

1. This machine heats duplicating material very hot. Use it with care and avoid being burned.
2. Users should read this manual and learn the functions of each button before operating.
3. If duplicating material solidifies in the tank, **DO NOT** start mixing. Users should take out the gel and cut them into small pieces before turning on the machine.
4. Before turning on the machine, make sure there is water in the water jacket, otherwise the heating elements may be damaged.
5. The Cook-Down temperature and Hold temperature of this machine may be adjusted. The adjustment button is located on the lower left corner of the third button. (See Figure B on page 5) Press this button while all the indicators are off, and the three indicators will be turned on. Press the first button to adjust the Cook-Down temperature from 189°F to 207°F (87°C to 97°C) and the Hold temperature from 104°F to 131°F (40°C to 55°C). While adjusting the temperature, the value will be saved if no button is pressed in 5 seconds.

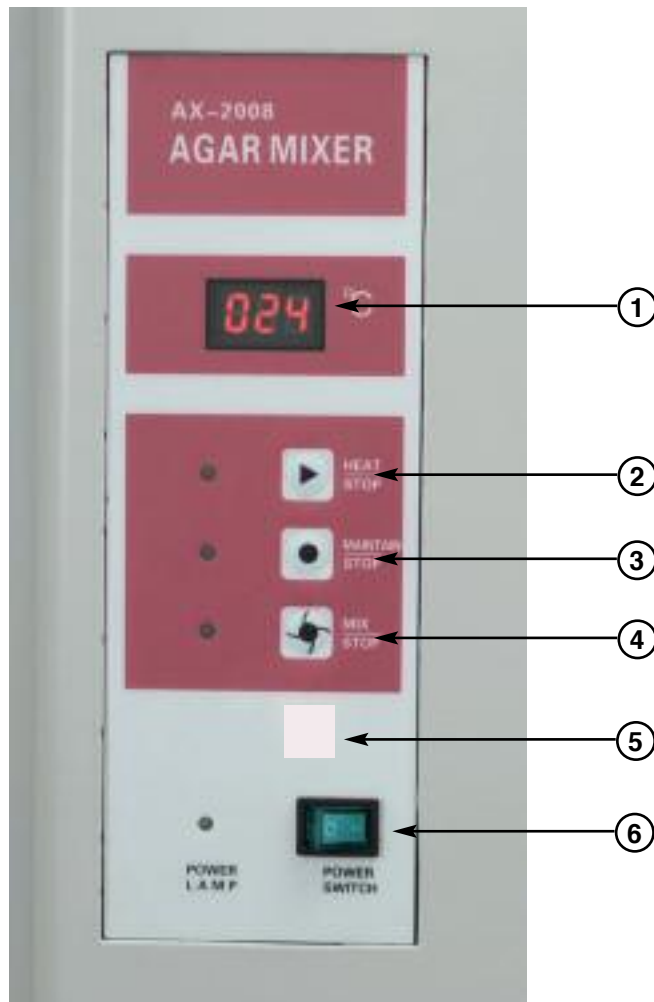
VIII. Troubleshooting

1. Mini-Dupe duplicator will not turn on.
 - A. Check wall outlet for power.
 - B. Check if power cord is connected to duplicator.
 - C. Check if the main power supply is turned to the On (O) position.
 - D. Check if back panel is secure.
 - E. Check circuit breaker.
 - F. Check the fuses on the rear of the machine.
2. Duplicator front panel display is working, but duplicator does not heat.
 - A. Check heater connections on terminal board, relay & controller.
3. Motor will not run.
 - A. Check circuit breaker.
 - B. Check motor connections on terminal board, relay & controller.
 - C. Check Fuses
4. Fan does not turn on.
 - A. Check fan connections on terminal board, relay & controller.
 - B. Check Fuse



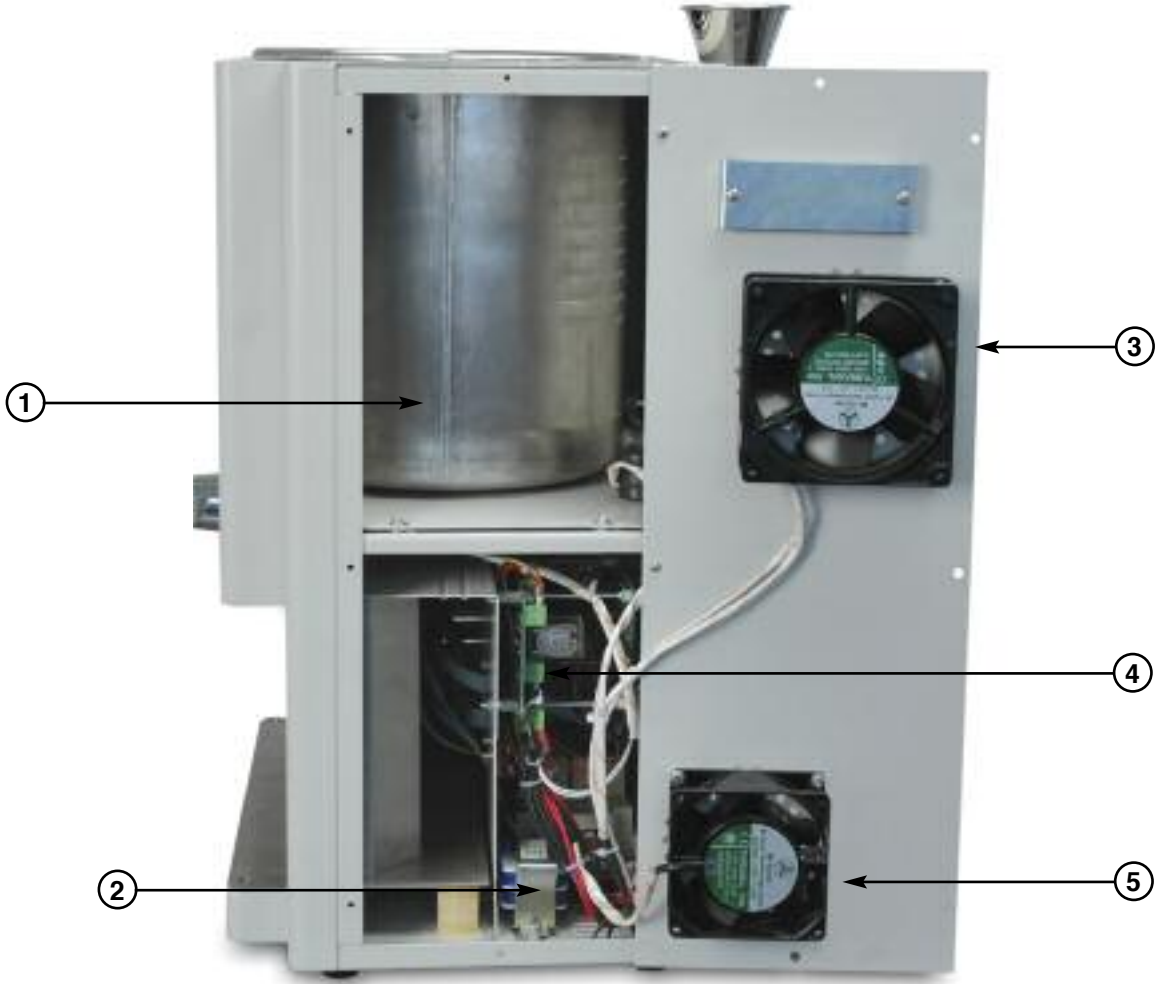
Front & Rear View with Top Cover

ITEM & DESCRIPTION	PART NUMBER
1. Outer Cover	40811P37
2. Control Panel	40811P48
3. Pour Valve Handle	40811P38
4. Pour Platform	40811P20
5. Fuses	40811P44
6. Water Drain Valve Handle	40811P1
7. Water Fill Valve Handle	40811P45
8. Water Fill Funnel	40811P43



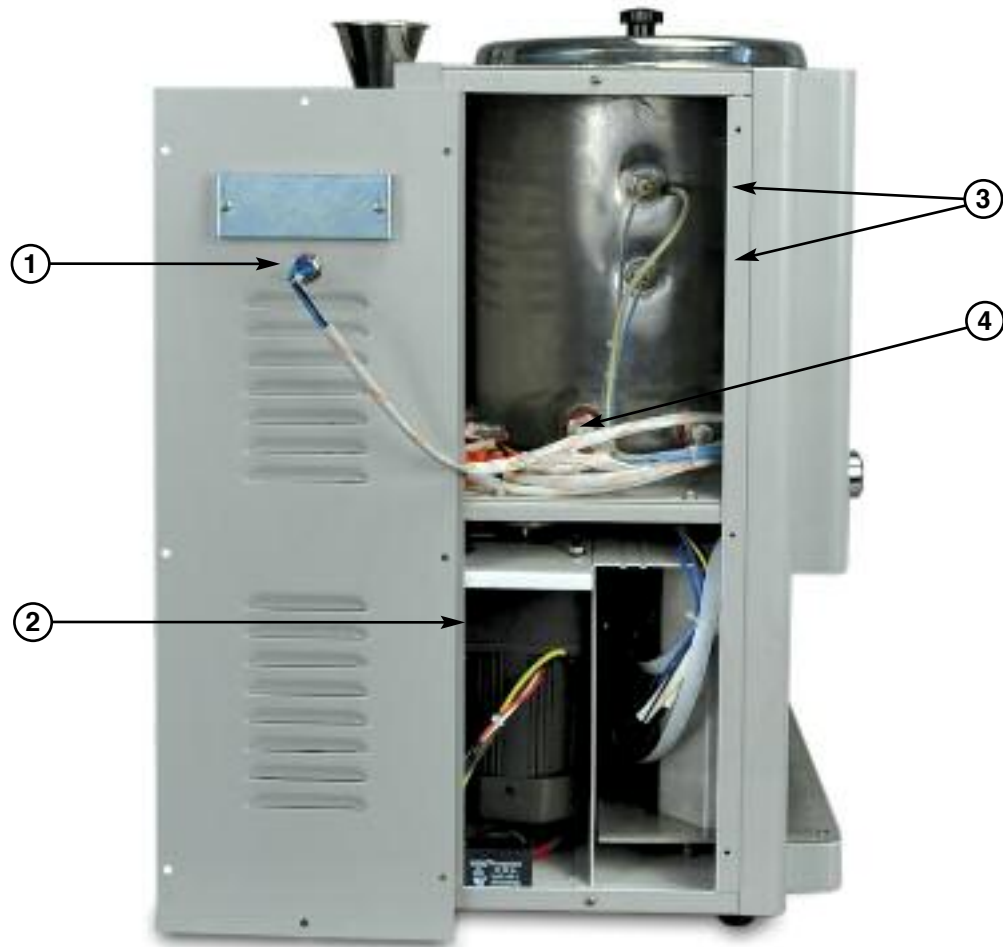
Front & Rear View with Top Cover

ITEM & DESCRIPTION	PART NUMBER
1. Temperature Indicator	40811P37
2. Heater Cook-Down Buton	40811P48
3. Maintain/Hold Low Temp. Button	40811P38
4. Stirrer	40811P20
5. Phantom Button	40811P44
6. On/Off Power Switch	40811P1



Right Side View with Fans

ITEM & DESCRIPTION	PART NUMBER
1. Colloid/Water Chamber	40811P39
2. Transformer	65383P7
3. Cooling Fan for Colloid/Water Chamber	65383P6
4. Circuit Board	40811P20
5. Cooling Fan for Electronics	40811P19



Left Side View

ITEM & DESCRIPTION	PART NUMBER
1. Valve Heater Control	36081R
2. Stirrer Motor	40811P22
3. Water Sensors	40811P22A
4. Heater	40811P33



Inside Tank View & Lids

ITEM & DESCRIPTION	PART NUMBER
1. Water Chamber	40811P23
2. Colloid Chamber	40811P24
3. Mixing Blades	40811P25
4. Outer Cover	40811P30
5. Inner Cover	40811P35
6. Inner Cover Water Chamber	40811P31



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