



Coffee System Troubleshooting and Repair



CM24-1 Operation Sequence

POWER ON/OFF

When turning on the coffee system the brewer motor cycles once and the display reads *Please Wait Heating*, Once heating is completed, *Machine Ready* will display.

LIGHTS

The lights can be turned on or off even when the coffee system is off.

MAIN DOOR OPENED AND CLOSED

If the main door is opened (when machine is on) and then closed, the brewer motor will cycle.

HOT WATER/TEA

When tea is selected, the R-2 valve opens on the Boiler, at the R-2 valve during normal operation, also the water pump will engage simultaneously. When completed, *Machine Ready* will display.

COFFEE DRINK

When Coffee, Espresso, Caffé crème, and Ristretto are selected; the grinder engages and grinds the beans for the programmed time. The brewer motor engages and tamps the coffee grounds. The water pump engages and sends high-pressured hot water through the brewer via the R-1 valve on the boiler. Coffee will dispense. When completed, the tamper motor disengages and the compressed coffee grounds are swept out into the coffee container, *Machine Ready* will display.

COFFEE MILK DRINK

When Cappuccino and Macchiato are selected; the steam engages via the R-5 valve in the steam boiler which, in turn, draws milk through the milk suction tube heating the milk with steam and dispenses it through the center chamber of the dispenser. At the same time, the grinder engages to grind the beans and the brewer raises to tamp the coffee in the brewer, after the milk has dispensed. The water pump engages and sends high pressured hot water through the brewer via the R-1 valve on the boiler. Coffee dispenses. The compressed coffee grounds are swept into the coffee container. When completed, *Machine Ready* will display.

COFFEE LATTE

When coffee latte is selected; the grinder will engage to grind the beans and the brewer motor will engage and tamp the coffee grounds. The water pump will engage and send high-pressured hot water through the brewer via the R-1 valve on the boiler. Coffee will dispense, when finished the compressed coffee grounds will be swept out into the coffee container simultaneously the steam will engage via the R-5 valve in the steam boiler, which in turn will draw milk through the milk suction tube heating the milk with steam and dispensing through the center chamber at the dispenser, *Machine Ready* will display.

DECAF COFFEE DRINKS

When decaf is selected, *Decaffeinated* will display. No action from the coffee machine until a coffee drink is selected. For example; place coffee grounds into the coffee ground chute, select decaf, (no action from coffee machine) and then press regular coffee; the brewer motor engages and tamp the coffee grounds. The water pump will engage and send high pressured, hot water through the brewer via the R-1 valve on the boiler. Coffee will dispense, the compressed coffee grounds will be swept out into the coffee container, and when completed *Machine Ready* will appear in the display.

Latté (Steamed Milk)

The steam engages via the R-5 valve in the steam boiler. The boiler draws milk through the milk suction tube heating the milk with steam and dispensing it through the center chamber of the dispenser. When completed, *Machine Ready* will appear in the display

Milk Cleaning.

After the last milk drink (if milk timer programmed) *Please Milk Clean* will display. Press and hold the decaf button, *decaffeinated* will display; then *clean* will display, the unit draws the cleaning solution through the milk suction tube - heating the water and cleaning solution with steam. At the same time dispensing through the center chamber of the dispenser. Once dispensed, *Rinse* will display. When completed, *Machine Ready* will display.

Decalcification mode.

Press and hold the decaf button, First *Decaffeinated* will appear in the display and then *Clean*. The tamper motor engages and the unit draws the cleaning solution through the milk suction tube heating the water and cleaning solution with steam, dispensing through the center chamber at the dispenser when finished. The pump will start and water will dispense from the coffee ports on the dispenser, It will pause and then pulse on and off several times. The tamper will disengage, and more steam will dispense. *Rinse* will be displayed until the unit finishes the cycle. When the cycle is complete *Machine Ready* will display.

Special Functions

Resetting the water quantity metre

With this function the number of litres of water used can be reset at zero.

Proceed as follows:

- Switch the machine off.
- Switch it on again, keeping the button pressed until the display indicates "Reset H2O filter counter . . . Wait".

Resetting the washing cycles

With this function the number of cleaning cycles carried out can be reset at zero.

Proceed as follows:

- Switch the machine off.
- Switch it on again, keeping the button pressed until the display indicates "Reset Clean Counter . . . Wait"

Resetting to standard parameters

With this function incorrect operating data can be deleted and the standard programming settings can be restored (See list of standard parameter")

Proceed as follows:

- Switch the machine off.
- Switch it on again, keeping the buttons 1 (ENTER) and 3 (RESET) pressed simultaneously until the display indicates "Please Wait Preset Data".

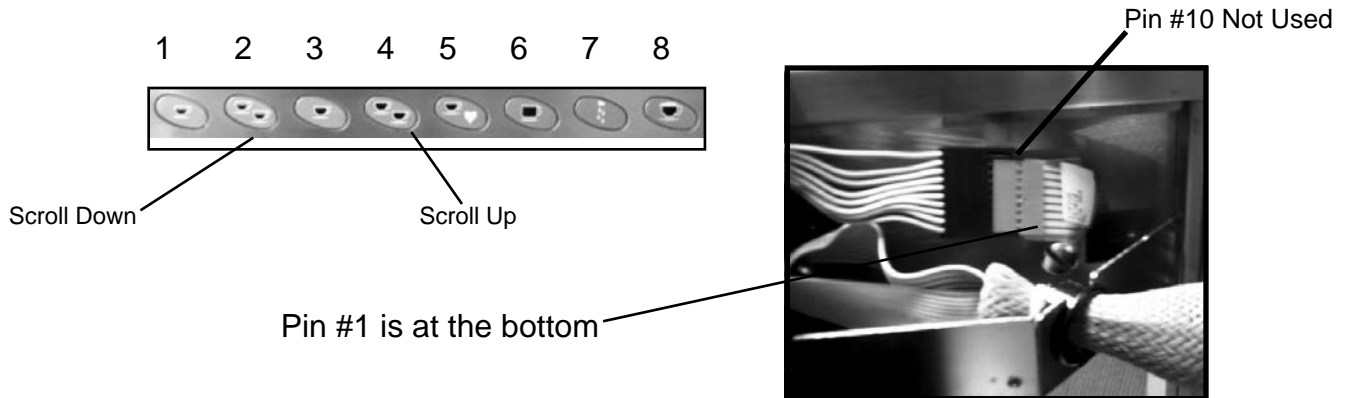
List of Standard Parameters

Drink	Water Volume in ml	Grinding Time in seconds	Milk Dispenser in seconds	Tamping	Number
Ristretto	40	8		Yes	
2 Ristretto	80	12		No	
Espresso	50	7		Yes	
2 Espresso	100	10.5		No	
Caffe Creme	60	7		Yes	
2 Caffe Creme	120	10.5		No	
Coffee	100	8		No	
2 Coffees	200	12		No	
Cappuccino	50	7	12	Yes	
Large Cappuccino	60	7	15	Yes	
Macchiato	50	7	12	Yes	
Milk Coffee	60	7	12	Yes	
Milk			15		
Coffee Grounds Metre					20
Cleaning Milk Fronter					00
Message Cleaning					00
Cleaning Brewer Unit					00
Coffee Temperature					98
Steam Temperature					125
Decalcification					00

The Touchpad:

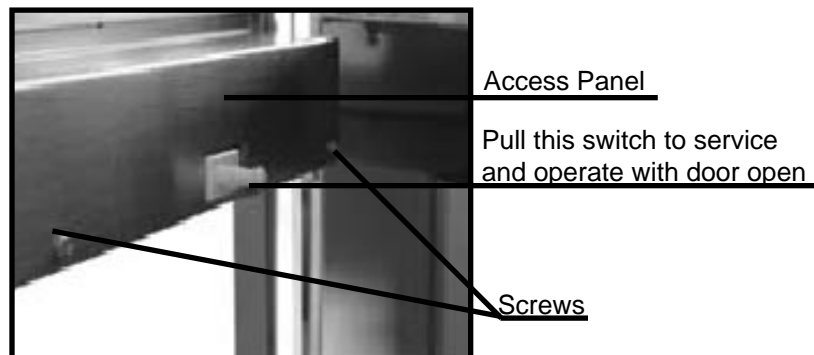
To check the membrane, unplug and ohm across the pins. Pin 1 is at the bottom and pin 9 is at the top. Place the meter on the pins below and press the button to close the circuit.

- Ohm pins 1-9 and press the espresso button #1.
- Ohm pins 1-8 and press the two cups espresso button #2.
- Ohm pins 1-7 and press the one-cup café crème button #3.
- Ohm pins 1-6 and press the two-cup café crème button #4.
- Ohm pins 1-5 and press decaffeinated coffee button #5.
- Ohm pins 1-4 and press the one-cup coffee button #6.
- Ohm pins 1-3 and press the hot water button #7.
- Ohm pins 1-2 and press the one-cup cappuccino button #8.



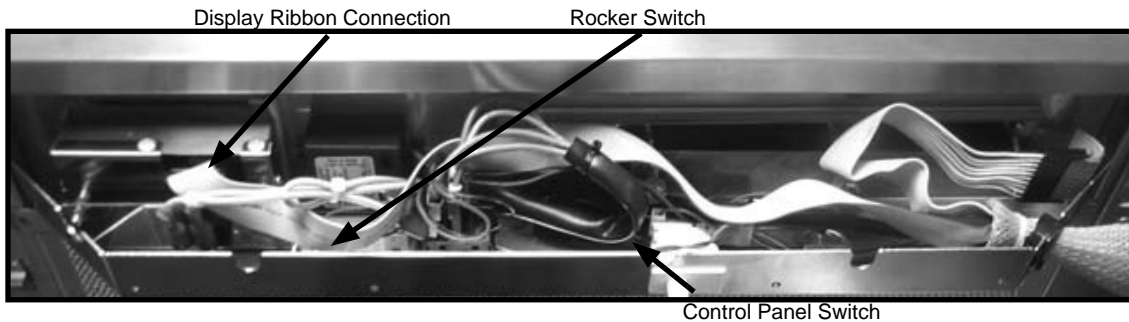
The display, lights, and switches:

- Pull the CM24-1 out and unlock the front control panel, and open.
- Remove the four screws on the inside upper panel, this will give you access to the touch pad, light socket, light transformer, and display.
- The LED lights simply slide down and out; the light transformer is held in place with double-sided tape.
- The switches are NO, NC, COM. Switches are easily removed.
- The display and membrane unscrew with a regular screwdriver and slide out.



The Display

- The control board, 5 VDC, powers the display. Slide the CM24-1 out to confirm 120 VAC to the main power board.
- If 120VAC is present, move onto the next step.
- Unlock and open the main door, remove the four screws on the upper backside of the main door and remove the access panel to access the display.



- Unplug the ribbon connector from the display.
- Use a paper clip to slip inside the pinholes at the red strip side of the ribbon connector (use picture diagram).
- 5VDC should be present.
- If 5VDC is not present access the control board on the right side.



Control Panel Switch:

- This switch is a NO (blue wire) and COM (red wire) type switch, signal voltage that can only be checked with a digital meter 2 to 3 MVAC.
- The on/off (Rocker switch), is labeled 2N and 1N and is normally open.
- L4 and L5 are normally open.

Light Transformer

- The light transformer will have 240 VAC incoming at the pink wires N&L 0006.0 MVAC out of the black and red to the LED lights.

CM24P-1 Regulator installation

It is best to plumb a ¼" copper tube to the back of the CM24P-1, at the center back wall or bottom center. A ¼" compression X ¼" F.P.T. connection is needed. Confirm all parts prior to installation.

- (3) L- fittings. (Quick release)
- (1) Approximately Three feet of 4mm Teflon tubing.
- (1) Regulator.
- (1) Mounting Bracket.
- (1) Pressure gauge.
- (1) Black "O" ring seal. (This is in the box with the cleaning solution)
- (1) Mounting bracket.

1. On the backside of the CM24P-1 in the upper right corner, mount the bracket by removing the screws from the chassis. (In some cases there may only be one screw to mount the bracket.)
2. Install the two L-fittings on the regulator.
3. Mount the regulator on the bracket with the large plastic nut, take note of the arrows on the regulator, these represent the flow of water to the CM24P-1.
4. Slip the black rubber "O" ring onto the pressure gage threads and then screw the gauge onto the regulator.
5. Cut 17 inches of 4mm Teflon tubing. Push one end into the CM24P-1 connection (Backside lower right corner.) Push the opposite end into the **outgoing** arrow side of the regulator L-fitting.
6. Push the leftover Teflon tubing into the L-fitting on the **incoming** arrow side of the regulator. Slip the opposite end of the tubing into the last L-fitting.
7. If ¼ inch copper plumbing is used, a ¼" compression X ¼" F.P.T. connector fitting will be installed on the copper tubing.
8. Tighten the L-fitting to the F.P.T. side of the compression connection. (Plumbers putty or tape may be needed for proper seal.)

****Choose the largest regulator possible**

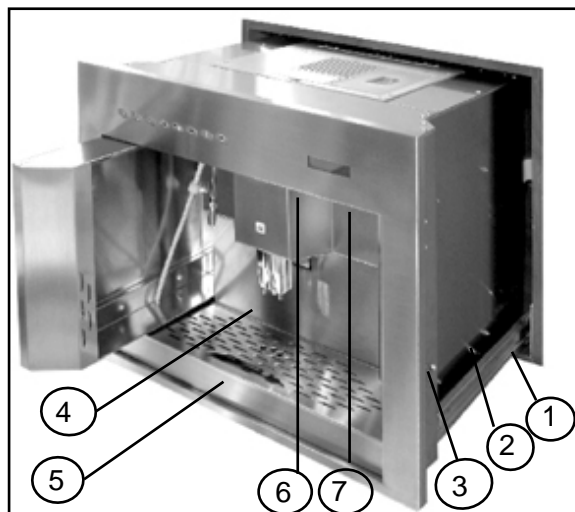
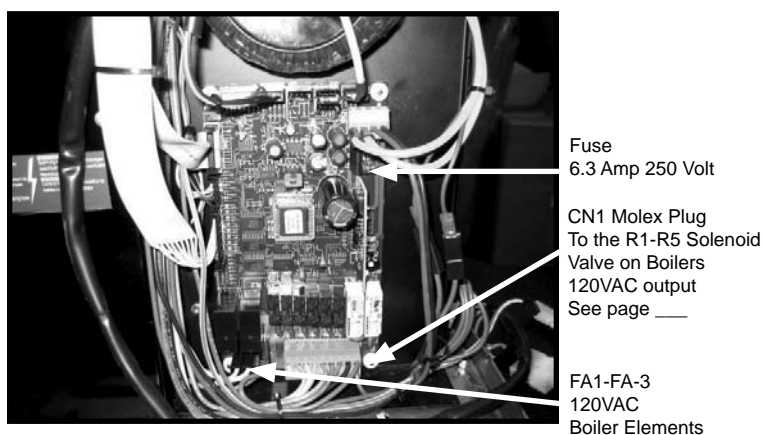
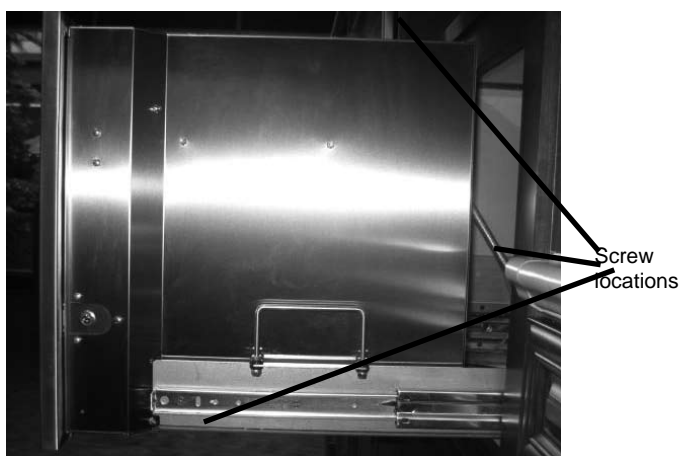


To Access The Control Board, Capacitor And Transformer:

- It is not necessary to remove the CM24-1
- Grasp under the control panel and pull the whole unit forward, it will roll out on glide tracks.

To access the control board

- From the right side - remove the screws at the top, bottom and back.
- From the top panel on the right side, remove the panel and there will be a second panel covering the controls, pull the top of this panel forward and then the bottom out (it is not screwed in) this will expose the main control board.



CM24T-1

This unit uses a plastic water tank.

To remove the tank:

- Pull the unit forward.
- Flip the black lid open and pull the tank up and out.

CM24P-1

This unit is plumbed directly to the house water line at the lower left side on the back.

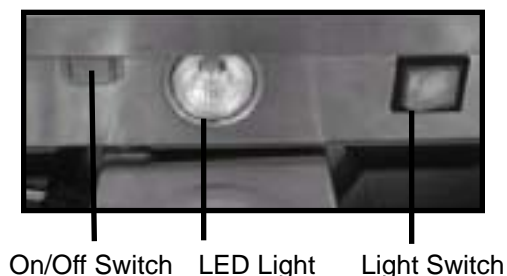
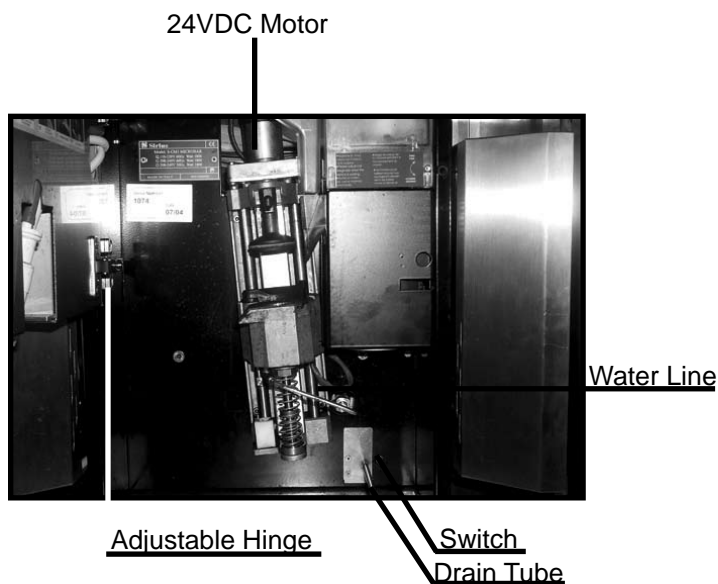
- The water line is a quick disconnect. Push in the connector and pull on the water line to remove.
- To reinstall the water line push it back into the connector, it locks automatically.

Brewer Unit Tamper motor:

- The motor is 24VDC and can be used manually for servicing.
- Locate the on/off button underneath the control panel, and then turn the unit off.
- Press and hold the second and fourth buttons and then turn the coffee maker back on, keep holding the second and fourth button until manual movement is displayed.

To have manual control of the tamper motor:

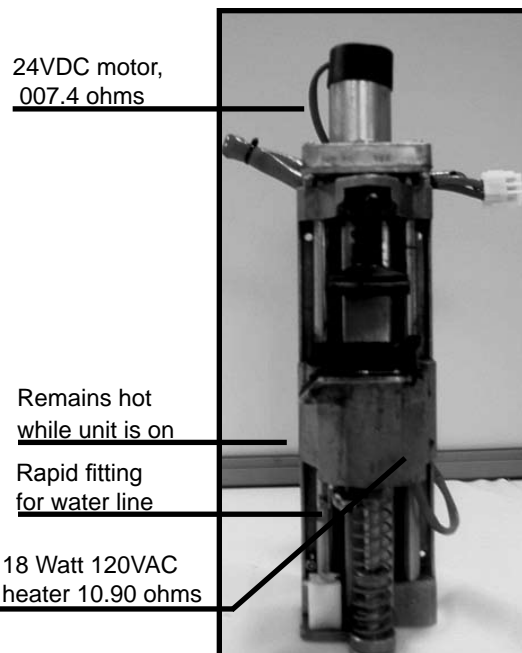
- Press the second button (to lower the brewer unit)
- Press the fourth button (to raise the brewer unit)
- To exit, turn unit off and back on.



Removing the brewing unit:

****Caution, Brewing unit may be hot!**

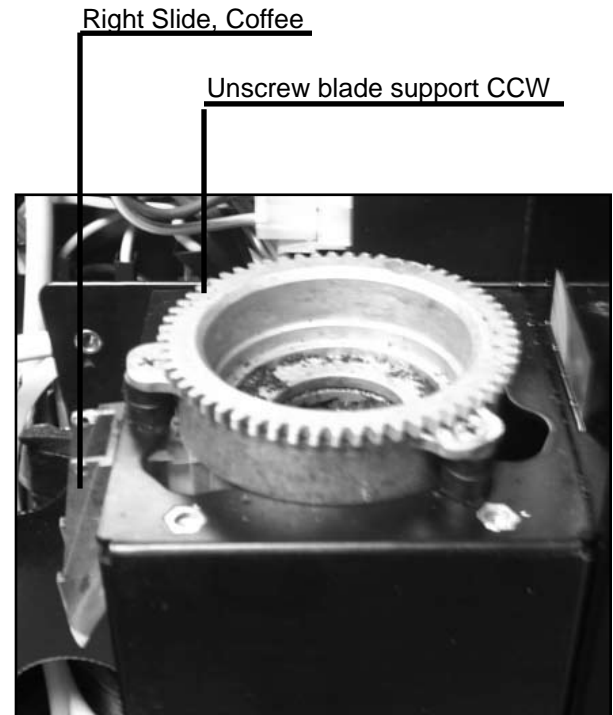
- The CM24-1 does not have to be removed from the wall for this repair.
- Slide the unit out and remove the plastic top.
- Open the brewer unit flap.
- Remove the drip tray, open the main door with the key and remove the coffee ground container.
- Disconnect the water line, the connections are quick disconnects, rapid fittings. Push in on the connector and pull the Teflon water line out.
- Remove the four Allen screws and disconnects the Molex plug, then pull the brewer unit out to service.
- The brewer unit has an 18-watt 120VAC heater, remove the setscrew and the heater will slide out.
- To test the magnetic switches, place a screw driver in the gear motor. To drive it up and down manually, ohm across the blue and brown wires. Refer to page 27



Changing the blades on the grinder:

****The CM24-1 does not have to be removed from the wall for this repair.**

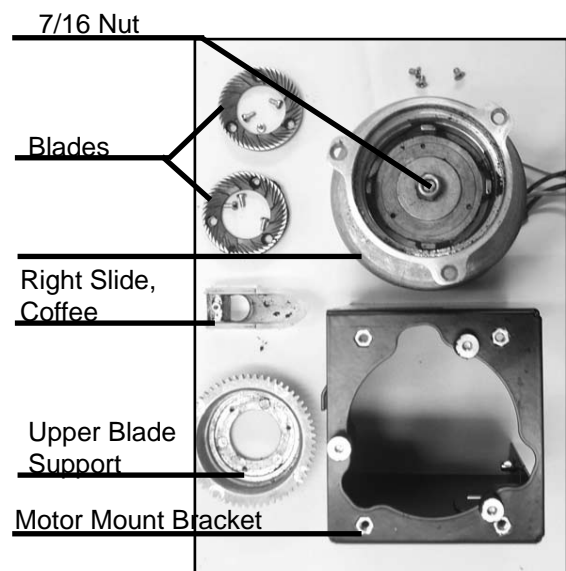
- Remove the black plastic top.
- Remove the plastic coffee bean container by removing all the coffee beans and pull the diffuser out in order to see and remove the screws.
- Remove the decaffeinated conveyor.
- Remove the top blade by unscrewing the blade support counter clockwise; take the 3 screws out of each blade support.
- Important: When screwing the blade support back in place, be sure to screw it all the way in, then back it out $\frac{1}{4}$ of a turn. It may be necessary to fine-tune the grinder with the Allen screw adjustment on the front of the coffee bean container. (see use and care manual.)



Removing the grinder motor 120VAC:

****Unit must be uninstalled**

- Remove the top and two right side panels.
- Remove the plastic coffee bean container by first removing all the coffee beans and then pulling the diffuser out. This makes it possible to see and remove the screws.
- Remove the right slide coffee ground chutes.
- Remove the screws on the right side, drop the grinder assembly out and unplug the moxex plug.



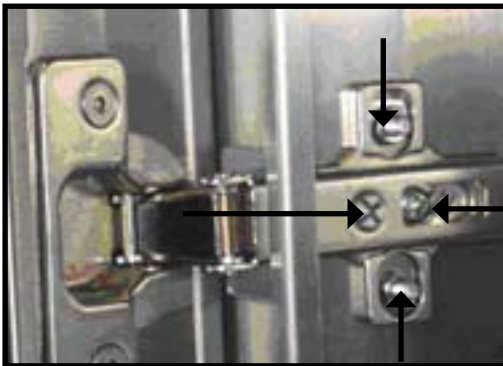
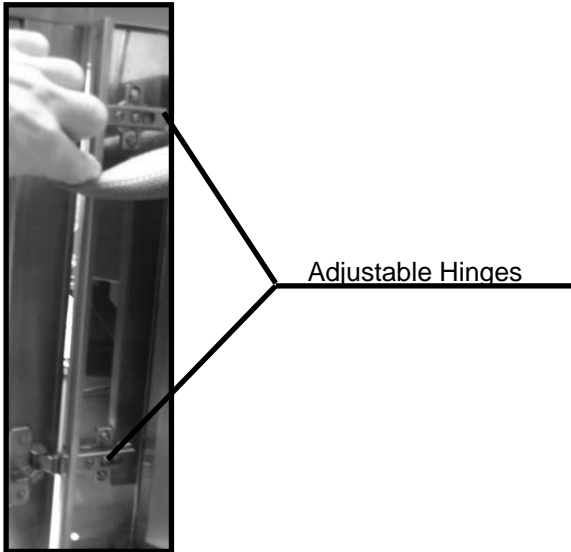
Door adjustment:

- Slide the unit out, unlock and open the main door.
- At the left side of the inner door frame there is a removable panel, which when removed will expose the door hinges.
- Remove the two top screws and the one at the bottom. This releases the panel and makes it possible to adjust the door.

Hinge Adjustment Screws

To access hinge adjustment screws:

- Unlock and swing front cover open
- Locate hinge cover shield, remove three screws and extract cover



Diagnosing components on the boiler can be done by following steps 1 through 5. This will also allow access to the water valve, flow meter, Reed switch, water lines and fittings.

To remove the boilers completely follow steps 1 through 8.

1. Remove the back cover - 8 screws at the rear, 2 on the left side, 2 on the right side and 4 across the top. They can be removed with a small or right angle Phillips screw driver, (if room permits).
2. If the coffee system must be uninstalled, unplug and disconnect the water line, on the left and right side glides are release catches

similar to cabinet drawers. Release and pull the CM24-1 forward. (machine weighs 100#)

3. Remove the top. Remove all the Phillips and 3mm Allen screws, lift the top off.
4. Remove water tank if applicable, in the water tank box on the right inside remove the 2.5mm Allen screw.
5. Underneath the chassis towards the back remove the two 2.5mm Allen screw, lay the water tank box down on the cabinet or countertop surface. It may be necessary to unplug the water pump and Reed switch wires.
6. Remove the boilers, disconnect the water line from the flow meter and disconnect the Molex plug wire harness.
7. Remove the drip tray and open both doors and remove the coffee grounds container.
8. Remove the two 4mm Allen screws on the front side and the boilers will come loose; lift the boilers out. Reverse the process to reinstall the boiler.



Servicing/Removing the Boiler:

It may not be necessary to uninstall the CM24 to diagnose components on the boiler. Follow steps 1 through 5. These steps will also allow access to the water valve, flow meter, reed switch, water lines and fittings.

To remove the boilers completely follow steps 1 through 8:

1. Remove the back cover; there are 8 screws at the rear, 2 on the left side, 2 on the right side and 4 across the top. Remove these with a small or right angle Phillips screw driver (room permitting.)
2. If the coffee system must be uninstalled; unplug and disconnect the water line. The left and right side glides release catches are similar to cabinet drawers, release and pull the CM24 forward. (weight 100 lb.) Remove the top.
3. Remove all the Phillips and 3mm Allen screws and lift the top off.
4. Remove water tank (if applicable.) Inside the water tank box on the right, remove the 2.5 mm Allen screw.
5. Under the chassis, towards the back, remove the two 2.5 mm Allen screw, lay the water tank box down on the cabinet or countertop surface. It may be necessary to unplug the water pump and Reed switch wires.
6. Remove the boilers, disconnect the water line from the flow meter, and disconnect the Molex plug wire harness.
7. Remove the drip tray and open the main and dispenser door and remove the coffee grounds container.
8. Remove the two 4 mm Allen screws on the front side to loosen the boilers; lift the boilers out. Reverse the process to reinstall the boiler.