3243 North California Avenue, Chicago, IL 60618

ECONO MERCHANT POPCORN MACHINE
SERVICE MANUAL

120 Volt,
Single Phase, 60 Cycle

230 Volt,
Single Phase, 50 Cycle

READ and **UNDERSTAND** these servicing and safety instructions before servicing this popcorn machine

SAFETY FIRST

The information in this manual is essential for the safe installation and servicing of your Cretors popcorn machine. The manual must be read and understood before installing and operating this equipment, or equivalent training must be provided.

"The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury". Ref.: 29 CFR 1926.20 (b)(4)(a)(2)

It is understood that safety rules within individual companies vary. If a conflict exists between the safety procedures contained in this manual and the rules of a using company, the more stringent rule should take precedence.

I INTRODUCTION

This manual is filled with time-saving and money-saving information regarding your Cretors popcorn machine. There is nothing, however, more important than the safety aids and warnings that are found throughout this document. The Safety Alert Symbol is used to identify topics of primary safety concern wherever they appear. Furthermore, a separate section has been included which deals exclusively with operation and accident prevention.

If, after reviewing this manual, anything is unclear or technical problems are encountered, contact the dealer from whom you purchased your machine for assistance and if there are any additional questions, feel free to contact our Customer Service Department at the address and / or phone number listed on the front and back covers of this manual. Always have the model and serial number of your machine available to assist in obtaining the correct information.

II SAFETY ALERT SYMBOL

The symbol shown below is used to call your attention to instructions concerning your personal safety and the safety of others. Watch this symbol. It points out important safety precautions. It means "ATTENTION! Become Alert! Your personal safety is involved!" Read the message that follows and be alert to the risk of personal injury or death.

III PURPOSE OF MANUAL

This instruction manual is intended to familiarize owners with the serivice, and safety procedures associated with your Cretors popcorn machine.

This manual should be kept available to servicing personnel.

A person who has not read and understood all servicing and safety instructions is not qualified to operate the popcorn machine.

IV PRODUCT IDENTIFICATION

CRETORS POPCORN MACHINE
ECONO MERCHANT MODELS:
EMR16C, EMR16CP, MRDB, EMRSS

ELECTRICAL SPECIFICATIONS: Econo Merchant Popcorn Machines are available in any of the following Electrical configurations:
120 Volt, Single Phase, 60 Cycle
230 Volt, Single Phase, 50 Cycle

SPECIFICATIONS:

MODEL EMR16C	**ECONO MERCHANT 16 OZ. ELECTRIC COUNTER MODEL**
Capacity:	16 oz. All-Steel Kettle, 320 one-ounce servings per hour
Electrical:	2775 watts
Dimensions:	22-1 / 4"D x 28-1 / 4"W x 37" H - - - - 55.8 cm D x 71.2 cm W x 93.9 cm H
Net Weight:	112lbs. (50.4 kg.)

MODEL EMR16CP	**ECONO MERCHANT 16 OZ. ELECTRIC COUNTER MODEL WITH PUMP**
Capacity:	16 oz. All-Steel Kettle, 320 one-ounce servings per hour
Electrical:	3520 watts
Dimensions:	22-1 / 4"D x 28-1 / 4"W x 37" H - - - - 55.8 cm D x 71.2 cm W x 93.9 cm H
Net Weight:	112lbs. (50.4 kg.)

MODEL MRDB	**MERCHANT DELUXE BASE**

Dimensions:	22"D x 28"W x 29" H - - - - 55.8 cm D x 71.1 cm W x 73.6 cm H
Net Weight:	93lbs. (41.8 kg.)

MODEL MREB	**MERCHANT ECONOMY BASE**
Dimensions:	22"D x 28"W x 29" H - - - - 55.8 cm D x 71.1 cm W x 73.6 cm H
Net Weight:	57lbs. (25.6 kg.)

MODEL EMRSS	**ECONO MERCHANT BASE**
Dimensions:	22"D x 28"W x 29" H - - - - 55.8 cm D x 71.1 cm W x 73.6 cm H
Net Weight:	57lbs. (25.6 kg.)

V INSTALLATION INSTRUCTIONS

1. Location

Choose a location for your Cretors popcorn machine to maximize the ease of operation and maintenance procedures. Check your local building and fire codes for location restrictions.

2. Power Supply

Check the nameplate to determine the required power supply.

Connect your popcorn popper only to the correct power source. Failure to do so may result in personal injury or death and may damage your machine.

C. Cretors and Company recommends dedicated circuits for the Econo Merchant popcorn machine to avoid a voltage drop in the supply wire.

Make certain the Rocker Switches on the popcorn popper are in the 'OFF' position when plugging into power source. Failure to do so may result in damage to your machine or present a shock hazard.

3. Connecting Machine to Power Supply

A. Perform work only on de-energized circuits. Failure to do so may lead to electrical shock resulting in personal injury or death.

B. Make certain that power supply circuit breakers are in the ‘OFF’ position.

C. Push the plug completely into the receptacle. If the cord has a twist lock plug be sure to turn to lock in position. Turn ‘ON’ the power supply circuit breakers and then turn ‘ON’ the machine rocker switch.

VI SERVICE INSTRUCTIONS

In the case of improper operation, qualified personnel only should perform the following diagnostic checks, and, if necessary, corresponding adjustments and repairs. Many of the following procedures present an electrical shock hazard and can cause serious injury or death.

1. Parts

When ordering parts, refer to the attached parts diagram. Always supply the serial number, model number, and voltage of your Econo Merchant popcorn machine.

THERMOSTAT OPERATION

A. The thermostat is installed as a safety device to prevent overheating of the kettle if the machine should be left unattended momentarily while in operation. The operation of the thermostat is indicated by the kettle indicator light. The thermostat is located in the kettle. The indicator light should stay on for most of the popping cycle. The indicator light should go off 10-20 seconds before the corn finishes popping and the kettle is dumped. If the indicator light goes out 30 seconds or more before the corn finishes popping, the thermostat may be too low and be in need of adjustment.

CAUTION If the corn has dried out, it may not finish popping at normal temperatures, and the light may appear to go out early. DO NOT ADJUST KETTLE TEMPERATURE BASED ON POOR QUALITY CORN.

B. If set too high (over 500°F 260ºC), the thermostat can cause a serious fire hazard.

C. Repair parts thermostats shipped from the factory have been factory adjusted to switch off the current to the heating elements when the kettle temperature reaches approximately 460° F (226ºC) for salt and 385° (196°C) for sugar**.** The factory setting should prove satisfactory; however, each thermostat must be checked after installation to confirm correct operation. To adjust the thermostat, perform the following operations:

THERMOSTAT ADJUSTMENT

A. Locate the plugged thermostat adjustment hole on the side of the kettle retainer and remove the plug.

B. Turn 'ON' the kettle heat.

C. Locate pyrometer over thermostat.

D. Set temperature so that the power to heat elements is cut off at the correct temperature.

KETTLE	SALTED CORN	SUGAR CORN
16 OZ.	460º F. (226º C)	385º F. (196º C)

E. To adjust thermostat, insert a flat blade screwdriver into the slotted adjustment screw and turn COUNTER- CLOCKWISE to raise the temperature or CLOCKWISE to lower the temperature.

F. Do not adjust more than one-quarter turn at a time. Check temperature after each one-quarter turn adjustment.

•

G. If no pyrometer is available, the thermostat may be adjusted by observing the operation of the indicator light as described in the Thermostat Operation section. Adjust the thermostat so that the kettle heat is turned off 10 to 20 seconds before the corn finishes popping and the kettle is dumped

v CAUTION If the corn has dried out, it may not finish popping at normal temperatures, and the light may appear to go out early. DO NOT ADJUST KETTLE TEMPERATURE BASED ON POOR QUALITY CORN.

CAUTION Do not adjust the temperature so high that the pan smokes at the end of the popping cycle.
If set too high (over 500°F or 260°C), the kettle can become a serious fire hazard.

H. Your final setting should allow the indicator light to cycle off 10 to 20 seconds prior to dumping the kettle.

I. Observe two or three cycles of correct operation to be certain everything is working correctly.

2. **Kettle Removal**

To remove the kettle assembly, perform the following operations:

A. Unplug the popcorn machine from the power supply.

B. For a 120 Volt machine, unplug the kettle from the top of the machine by twisting and pulling the plug out of the receptacle.
For a 230 Volt machine, unplug the kettle from the top of the machine by unscrewing the plug ring then pull down on plug.

C. Release and remove the #2110-1 retainer spring. With one hand under the kettle, pry off the kettle return spring from the kettle with a screwdriver.

D. Pull the #2723 kettle hinge pin out. This will release the kettle. Be sure to use proper lifting techniques when removing the kettle assembly to avoid injury to your back.

E. Turn the kettle upside down and remove the screws that clamp the flexible conduit where it enters the pan. Note the location of the clamps, thermostat and terminals on the heat elements.

F. Remove the nuts on the bottom of the retainer.

G. Lift the retainer off the kettle and feed cable in through fitting. If carbon has formed, careful tapping with a wood or other soft faced hammer around the edge of the retainer will break it loose.

H. When removing nuts from the threaded studs on the bottom of the pan, do not wipe off the silver lubricant. Without this lubricant (NEVER SEEZ) the nuts may freeze on the studs and cause the studs to break when the nuts are turned, in an attempt to remove them.

3. Level Kettle

A. The kettle level adjustment is made with adjusting bolt at the top end of the kettle return spring.

B. Unplug the machine from the power source and allow the machine to cool

C. Remove the metal cover of the machine by first removing the eight screws on the corners. The cover may then be lifted straight up.

D. There is an adjustment bracket at the top of the gas spring. Loosen the nut on the ball support.

E. Lowering the ball support in the slot will raise the kettle, and raising the ball support will lower the kettle.

F. Adjust so the kettle is level and tighten the nut onto the ball support.

VII TROUBLE SHOOTING

1. Problem - Popping is slow

QUESTION: Were the correct amounts of corn and oil used?

Refer to the chart in the operating section for the correct quantities.

QUESTION: Does the kettle indicator light go out more than 30 seconds before the corn finishes popping?

YES! Temperature set too low - See service instruction section on how to adjust temperature.

NO!

A. Voltage may be low - check voltage at circuit breaker with kettle heat 'ON'. Extension cords or inadequate wiring will provide full voltage, if no load is applied. Once the kettle heat and auxiliaries are turned on, the voltage may drop 5 to 10 volts.

B. Check the amperage draw of the heating elements, by using a clamp-on ammeter. Determine whether or not a heating element has failed by performing the following procedure:

a. Remove the top of the machine by removing the screws on the sides and lifting the top off.

b. Turn ‘ON’ the kettle heat.

Place the ammeter around the blue or brown lead to the popper kettle. The following current draws are normal:

Kettle	Watt	Elements	120V Amps
16 oz.	1250	1808-A	10.4 amps
	750	1809-A	6.2 amps
			16.6 total

Kettle	Watt	Elements	230V. Amps
16 oz.	1250	1808-C	5.2 amps
	750	1809-C	3.1 amps
			8.3 total

A low reading indicates a problem in the kettle. The heat element may not be functioning properly. If the element is not functioning, the possible causes are either that the element has burned out or a lead wire has burned off one of the element terminals due to a loose connection. In either case the kettle must be removed and the problem identified. See service section for kettle removal instructions.

a. Remove kettle (see Service Section for removal instructions)
b. Check for short circuits inside the kettle.
c. If wires must be replaced, be sure to use nickel wire supplied by Cretors. Conventional copper or "stove" wire will have limited life.
d. Make a visual check for broken, loose, burned or heat damaged wires. If there are no obvious broken or loose wires shorting out on the kettle, the elements must be checked.
e. Perform a continuity test on the elements. It is possible that one of the elements has burned through its insulation and casing and is shorting out directly to the kettle bottom.

Continuity test

If checking individual elements you must remove the nickel wire and straps from the terminals to isolate each element.
Check element between the following points:

Terminal to terminal	1.	120V - 7.2Ω total 1250 watt element – 11.5 Ω - 750 watt element - 19.2 Ω 230V - 28.8Ω total 1250 watt element 46.1 Ω - 750 watt element - 76.8 Ω No continuity-burned element; replace.
First terminal to element case	1.	Continuity to case from terminal indicates a grounded element; replace.
	2.	No continuity - functioning properly

Second terminal to element case	1.	Continuity to case from terminal indicates a grounded element; replace.
	2.	No continuity - functioning properly

Replace failed heat element with an identical unit available from your local dealer or from Cretors. Reassemble and reinstall kettle assembly onto the machine.

2. Problem - Kettle will not heat

QUESTION: Do any of the other components work - motor, light, etc.?

NO! Check power supply:

A. Is it plugged in?
B. Is the receptacle live?
C. Is machine plugged into the proper voltage? Measure with voltmeter and compare to specification on nameplate of machine.

Do not attempt electrical repairs on the power supply circuit unless you are qualified to do so. The electrical shock associated with line voltages can cause serious injury or death.

YES!

A. Problem is in machine.

The following procedures are performed with the power 'ON'. As with any electrical repairs, there is a shock hazard present.

A. Check the amperage draw of the heating element by using a clamp-on ammeter. Check to determine whether or not the heating element has failed or thermostat is closed or open.

B. At room temperature, the thermostat should be calling for heat and you should get a full amp draw. (Check Trouble Shooting Section for amp draw.)

3. Problem - Corn Burns

QUESTION: Is the agitator working?

YES!

A. Check to be certain the stirrer blade is on the bottom of the pan and is stirring the corn.
B. Were the correct amounts of corn and oil used? See Operation Section for correct amounts.
C. Temperature set too high? - adjust temperature.

NO!

A. Check motor connections – loose wire.
B. Check to see if there is proper voltage at the motor. If yes, motor is bad – replace motor. If no, check to see if the switch is okay.
C. Check to see if there is voltage on the input side of the switch. If yes, then turn switch on and see if there is voltage on the output side. If no, bad switch – replace.

4. Kettle not level

QUESTION: Has the counterbalance lost pressure?

YES! Check counter balance.

A. The popper kettle is held in position by a gas spring counterbalance. The counterbalance depends on high internal gas pressure to provide the force which holds the kettle level. If some gas has leaked and the pressure is low, the kettle will hang down from level and will require very little pressure to push it through the dump cycle.
B. To determine if counterbalance has lost pressure, take the dump handle and pull up. When this is done, be sure blades and agitator shaft are free and are not restricting the pan's movement. If the kettle can be raised and the counterbalance extends slightly, the counterbalance should be replaced. Be sure the motion is in the counterbalance and not the ball socket joints.
C. Another indication of low pressure on the counterbalance is that it requires very little pressure on the handle to dump the pan.
D. To replace the counterbalance, perform the following.
    a. Unplug machine from the power source, and allow the machine to cool.
    b. Remove the metal cover by removing the eight screws on the corners. The cover may then be lifted straight up.
    c. The counterbalance is attached to ball studs and is held in place with a small spring which snaps around the neck of the counterbalance socket. One end of this spring projects through the edge of the ball socket and prevents its accidental removal. After removing the locking springs at each end of the counterbalance, remove the pressure on the counterbalance, remove the pressure on the counterbalance by lifting the dump handle. The counterbalance may then be pulled off the ball stud. The ball socket has a small retainer spring to hold it in place and it may be necessary to pry it off with a screwdriver.
    d. Place a small amount of multipurpose grease in each socket of a new counterbalance and install the rubber boot towards the bottom. Reassemble in reverse order, following the directions above. Be sure to install the locking springs.

NO! Adjust Counterbalance.

A. The kettle level adjustment is made with the adjusting block at the top of the gas spring counterbalance. To adjust the kettle level, perform the following operations:
   a. Unplug the machine from the power source.
   b. Remove the metal cover (instructions given above).
   c. Loose the counterbalance ball support (#2118) and turn the upper stop nut on the stud in the top of adjusting block (#4273). If the kettle is to be raised, it is advisable to lift the kettle to a level higher than needed and tighten the stop nut, then lower it to the correct level with the stop nut. In some cases, it may be necessary to adjust below level because the kettle will raise slightly when #2118 is tightened.
   d. Replace cover.

5. Problem in Cornditioner.
   The Cornditioner consists of a blower, 400 watt heating element, and a thermostat mounted in a removable box. The Cornditioner circulates hot air through the popper case to keep popped corn hot and crisp.

   With the power connected, turn the Cornditioner 'ON'.

QUESTION: Is the switch 'ON' and no air being supplied?
   a. Check connections to blower
   b. Replace blower.

QUESTION: Is the Cornditioner switch 'ON' and cool air is being supplied?
   a. Check heat element: replace
   b. Check thermostat, replace. The maximum air output temperature is approximately 150°F. The thermostat us installed as a safety device and is not adjustable.

QUESTION: Is the indicator light 'ON' and air too hot from blower?
   a. Cornditioner screen is blocked - clear passageway.
   b. Blower not operating properly - replace.
   c. Thermostat stuck in 'ON' position - replace

VIII OPERATING INSTRUCTIONS

1. Do not attempt to operate your Cretors popcorn machine until you have read and understood this manual. Failure to do so may result in serious injury or death.

2. Do not attempt to operate your Cretors popcorn machine unless the installation instructions have been strictly adhered to. Failure to do so may result in serious injury or death.

3. Operate your Cretors popcorn machine only if it is in sanitary condition (SANITATION INSTRUCTIONS). Failure to do so may result in illness to your customers.

-

4. To operate your Cretors popcorn popping machine:

A. Fill the corn measure with corn and the salt measure with salt, and empty these into the kettle. When making sugar corn, add the correct amount of sugar, rather than salt, with the measure of corn.

B. Close the kettle lid by lifting and unhooking the #4266 cover lift rod and letting the cover down. Avoid contact with the kettle. Contact with a hot popping kettle may result in serious burns and scalds.

CAUTION! Always add corn to the kettle before adding oil. Failure to do so may result in the oil being heated too rapidly resulting in a fire.

C. Turn 'ON' the agitator, turn 'ON' the kettle heat.

NOTE: After the first popping the kettle is hot. Avoid contact with the kettle when adding corn or salt. Failure to do so may result in serious burns or scalds.

Measuring instruments have been provided to accurately measure the proper amounts of popcorn, salt and oil. The correct amount for each popping is:

SALTED CORN

	VOLUMETRIC MEASURE		
Kettle Size	Corn	Oil	Salt

16 oz.	16 oz. 448 grams	5-6 oz. 60 ml	1.5 tsp. 56 grams

SUGAR CORN

	VOLUMETRIC MEASURE		
Kettle	Corn	Oil	Sugar
16 oz.	16 oz. 500 ml	2 oz. 67 ml	2 oz. 67 ml

D. As the popcorn pops, it will push the lid open and discharge into the cabinet. When the corn finishes popping, lift the cover up. The corn remaining in the kettle can be removed by holding the kettle handle in your right hand and rotating down in a clockwise direction to dump kettle.

Avoid contact with the kettle when dumping popped corn. Failure to do so may result in serious burns or scalds.

NOTE: The ideal time for maximum volume is between 2-3/4 to 3-1/2 minutes from the time the corn is placed into the kettle until the time it is dumped. Check the popping time after several popping cycles. Reduce the charge of raw corn if the time is more than 3-1/2 minutes and increase the charge if the time is less than 2-1/2 minutes per popping.

E. Follow the recommended sanitation procedures.

IX SANITATION INSTRUCTIONS

Be certain the machine is turned 'OFF' and power is unplugged before sanitizing this machine. Failure to do so could result in injury or death.

Do not clean heated surfaces until they have been given sufficient time to cool. Failure to do so may result in serious burns.

1. Popping Kettle

A. Do not immerse an assembled pan in water. This will damage the electrical components and my cause short circuits resulting in electrical shock hazard if power is applied.

B. Do not use steel wool or other similar abrasives to clean the kettle as they will ruin the kettle by removing the nickel plating.

C. Do not attempt to clean the kettle with power connected unless you are boiling the "CKC" cleaning compound to clean the inside of the kettle in step F.

D. Do not attempt to clean a hot kettle. Failure to do so may result in serious burns or scalds.

E. The kettle has a polished nickel finish and is very easy to clean if oil is not allowed to burn on it. After the final popping, the best practice is to wait until the oil just begins to solidify, then take a cotton towel or absorbent rag and wipe the kettle. Once the oil is allowed to completely solidified, it can become more difficult to remove. We recommend coconut oil for your Cretors popper; it will not stick or burn as easily as other oils.

F. A thorough cleaning every week with "CKC" cleaning compound is recommended. This will prevent the accumulation of carbon on the bottom and internal sides of the kettle. When boiling the "CKC" cleaning compound in the kettle, do not fill the kettle with more than 3/4" high of water inside the kettle. If the kettle has been overheated or oils that tend to carbonize are used the normal cleaning procedures may not suffice. Increase frequency as needed.

G. Cretors Outside Kettle Cleaner "COC" should be used periodically to remove popping oil that may become baked to the outside of the kettle.

H. The agitator assembly is disassembled by removing the spring pin (#1472) going through the top of the stirrer blade (#7552). Lift off stirrer blade. The kettle agitator assembly should be removed weekly for thorough cleaning.

I. Clean all parts thoroughly, making sure to use Cretors Kettle Cleaner. Do not use any harsh abrasives or cleaning material.

J. Reassemble in reverse order, following the directions above.

2. Cabinet

A. Remove and empty the waste clean-out drawer (#4862) daily or whenever it is full. Under heavy use this may need to be done more often

B. The cabinet glass and cabinet base can be cleaned with any good grade glass or household cleaner suitable for glass and plastic surfaces. The inside of the cabinet can be cleaned with the same cleaner as the outside, if it is the type that has a cleaning agent to cut the oil remaining from the popping operation, and it is acceptable for food contact surfaces.

SAFETY FIRST

The information in this manual is essential for the safe installation and maintenance of your Cretors machine. The manual must be read and understood before installing, operating or maintaining this equipment, or equivalent training must be provided.

"The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury". Ref.: 29 CFR 1926.20 (b)(4)(a)(2)

It is understood that safety rules within individual companies vary. If a conflict exists between the safety procedures contained in this manual and the rules of a using company, the more stringent rule should take precedence.

This manual is filled with time-saving and money-saving information regarding your Cretors machine. There is nothing, however, more important than the safety aids and warnings found throughout this document.

If you have any questions, contact your local dealer and if there are any additional questions, feel free to contact the Customer Service Department at C. Cretors and Company.

Additional copies of this manual can be obtained from C. Cretors and Company at the address listed below. Please provide model and serial number when requesting additional copies of this manual. There will be a nominal charge for additional copies.

Cretors guarantees this machine to be free of defects in parts, materials and workmanship for one year. Please take this time to fill out the factory registration card and return it to the factory to activate your warranty. If you have any questions concerning the Cretors' warranty, please contact your local dealer or the Customer Service department at C. Cretors and Company.

EST'D. 1885
CRETORS®

C. CRETORS AND COMPANY

3243 N. CALIFORNIA AVENUE
CHICAGO, IL 60618
PHONE (773) 588-1690, (800) 228-1885, FAX (773) 588-2171
WEB SITE: http://www.cretors.com Email: postmaster@cretors.com