Barnstead International

RT™ Stirring Hot Plates, Stirrers and Hot Plates

OPERATION MANUAL AND PARTS LIST

Model #	Description	Voltage
SP136324	Aluminum Stirring Hot Plate	100
SP136325	Aluminum Stirring Hot Plate	120
SP136320-33	Aluminum Stirring Hot Plate	220-240
SP138724	Stainless Stirring Hot Plate	100
SP138725	Stainless Stirring Hot Plate	120
SP138720-33	Stainless Stirring Hot Plate	220-240
S138924	Stainless Stirrer	100
S138925	Stainless Stirrer	120
S138920-33	Stainless Stirrer	220-240
HP139924	Aluminum Hot Plate	100
HP139925	Aluminum Hot Plate	120
HP139920-33	Aluminum Hot Plate	220-240

LT1363X1 • 5/10/05

Table of Contents

Safety Information 3
- Alert Signals....3
- Warnings 3

General Specifications 5
- Heating Specifications 7
- Stirring Speed Specifications....7
- Environmental Conditions 8
- Declaration of Conformity 8

Introduction....9
- General Usage....9

Principles of Operation....10

Unpacking and Installation 11
- Unpacking 11
- Installation 11

Operation 12
- Setting the Stirring Speed 12
- Setting the Temperature 12
- Controlling Solution Temperature with an External Probe....13
- To Achieve Fast Heat-up of Large Volumes 13
- Heating Small Volumes 13
- Heating Metal Vessels and Sand Baths 14
- Over-Temperature Protection (OTP) Operation....14
- General Cleaning Instructions 14

Troubleshooting Guide 15
- Error Codes 15
- Error Code Descriptions 16

Exploded Views 17

Wiring Diagram....24

Replacement Parts 27

Accessories 29

Ordering Procedures 30

Warranty 32

Safety Information

Alert Signals

Warning
Warnings alert you to a possibility of personal injury.

Caution
Cautions alert you to a possibility of damage to the equipment.

Note
Notes alert you to pertinent facts and conditions.

Hot Surface
Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.

Note
The RT digital plates are not explosion proof. If explosion proof models are required, contact Barnstead International at 1-800-553-0039 for more information.

Warning
Refer servicing to qualified personnel.

Your Barnstead|Thermolyne RT Stirring Hot Plate, Stirrer or Hot Plate has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.

2. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials — fire or explosion may result. This device contains components which may ignite such materials. Not rated for use in hazardous atmospheres. Do not place unit on a flammable surface.

2. Use caution when heating volatile materials; top surface and element can reach the “Flash Point Temperature” of many chemicals. These stirring hot plates are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.

3. Do not use metal foil on hot plate which may block incoming air flow. Overheating will result.

4. Check cord for cuts and/or wear. If cord appears damaged, replace immediately.

5. Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard.

6. Use appropriate hand and eye protection when handling hazardous chemicals.

7. Gross weight of items placed on top of RT plate should not exceed 40 lbs. (18.1 kg).

8. “Caution: Hot Top. Avoid Contact.” The top plate of the unit can remain hot for some time after use. A “CAUTION - HOT TOP” light will remain on until top plate temperature cools to below 50°C.

9. Localized heater element temperature can be significantly higher than the temperature indicated on the display. If flammable concentrations reach internal element, a fire could result.

10. Do not leave an active probe out of the fluid. This may cause uncontrolled heating of the fluid on the hot plate and unintentional boiling or an explosion could occur.

11. Note that the exterior housing will be hot during and for a period of time after use.

12. This unit contains strong magnetic fields. Effects of magnetic fields have to be taken into account. (i.e. data lines, cardiac pacemakers, PC monitors, projection tubes, etc.)

13. Refer servicing to qualified personnel.

Specifications

Aluminum Top Stirring Hot Plates

Model Number	SP136324	SP136325	SP136320-33
		Overall Dimensions in. (cm)	
Width	6.5” (16.5 cm)	6.5” (16.5 cm)	6.5” (16.5 cm)
Height	3.9” (9.9 cm)	3.9” (9.9 cm)	3.9” (9.9 cm)
Depth	11.2” (28.4 cm)	11.2” (28.4 cm)	11.2” (28.4 cm)
Weight lbs (kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)
		Top Plate	
Diameter	5.3” (13.5 cm)	5.3” (13.5 cm)	5.3” (13.5 cm)
Height	0.6" (1.5 cm)	0.6" (1.5 cm)	0.6" (1.5 cm)
		Electrical Ratings	
Volts	100	120	220-240
Amps	6.4	5.3	3.0
Watts	640	635	710
Freq.	**50/**60	60	50/60
Phase	1	1	1
Max. Temp. °F (°C)	662°F (350°C)	662°F (350°C)	662°F (350°C)

Stainless Steel Top Stirring Hot Plates

Model Number	SP138724	SP138725	SP138720-33
Width	6.5” (16.5 cm)	6.5” (16.5 cm)	6.5” (16.5 cm)
Height	3.9” (9.9 cm)	3.9” (9.9 cm)	3.9” (9.9 cm)
Depth	11.2” (28.4 cm)	11.2” (28.4 cm)	11.2” (28.4 cm)
Weight lbs (kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)
		Top Plate	
Diameter	5.3” (13.5 cm)	5.3” (13.5 cm)	5.3” (13.5 cm)
Height	0.6" (1.5 cm)	0.6" (1.5 cm)	0.6" (1.5 cm)
		Electrical Ratings	
Volts	100	120	220-240
Amps	6.4	5.3	3.0
Watts	640	635	710
Freq.	50/60	60	50/60
Phase	1	1	1
Max. Temp. °F (°C)	662°F (350°C)	662°F (350°C)	662°F (350°C)

SPECIFICATIONS

Aluminum Top Hot Plates

Model Number	HP139924	HP139925	HP139920-33
		Overall Dimensions in. (cm)	
Width	6.5” (16.5 cm)	6.5” (16.5 cm)	6.5” (16.5 cm)
Height	3.7” (9.4 cm)	3.7” (9.4 cm)	3.7” (9.4 cm)
Depth	11.2” (28.4 cm)	11.2” (28.4 cm)	11.2” (28.4 cm)
Weight lbs (kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)
		Top Plate	
Width	10.5” (26.7 cm)	10.5” (26.7 cm)	10.5” (26.7 cm)
Height	1.0" (2.5 cm)	1.0" (2.5 cm)	1.0" (2.5 cm)
Depth	10.5" (26.7 cm)	10.5" (26.7 cm)	10.5" (26.7 cm)
		Electrical Ratings	
Volts	100	120	220-240
Amps	6.2	5.1	2.9
Watts	620	615	690
Freq.	50/60	60	50/60
Phase	1	1	1
Max. Temp. °F (°C)	662°F (350°C)	662°F (350°C)	662°F (350°C)

Stainless Steel Top Stirrers

Model Number	S138924	S138925	SP138920-33
		Overall Dimensions in. (cm)	
Width	6.5” (16.5 cm)	6.5” (16.5 cm)	6.5” (16.5 cm)
Height	3.7” (9.4 cm)	3.7” (9.4 cm)	3.7” (9.4 cm)
Depth	11.2” (28.4 cm)	11.2” (28.4 cm)	11.2” (28.4 cm)
Weight lbs (kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)	7.6 lbs (3.4 kg)
		Top Plate	
Diameter	5.3” (13.5 cm)	5.3” (13.5 cm)	5.3” (13.5 cm)
Height	0.6" (1.5 cm)	0.6" (1.5 cm)	0.6" (1.5 cm)
		Electrical Ratings	
Volts	100	120	220-240
Amps	.45	.42	.23
Watts	30	30	30
Freq.	50/60	60	50/60
Phase	1	1	1

Heating Specifications

Temperature range: 4°C - 350°C (39°F - 662°F)*
* *This stirring hot plate does not cool. The minimum temperature is 4°C if used in a cold room below 4°C.*

OTP Temperature Range: 60°C - 380°C ±30°C
Display Resolution: Temperature setpoint can be set in 2° increments up to 150°C, then in 5° increments up to 350°.

	Aluminum	Stainless Steel
Heat-up time to within 5°C of maximum temperature (unloaded top plate).	6 minutes	6 minutes
Temperature Stability:		
Center of the top plate surface (@ 100°C unloaded).	±3.0°C	±3.0°C
Using remote probe (500 ml of water in a 1000 ml flask at 70°C)	±1.0°C	±1.0°C
Accuracy:		
Temperature display vs. the actual average temperature at the center of the top plate (setpoint 100°C unloaded).	±10.0°C	±10.0°C
Temperature display vs. the actual remote probe temperature (at 70°C)	±3.0 typical	±3.0 typical

Stirring Speed Specifications

Speed Range 60 to 1200 RPM
(Maximum speed is dependent on the viscosity of the solution)

Speed Dial Position	Estimated Stirring Speed
2	60 rpm
4	125 rpm
6	350 rpm
8	700 rpm
10	1100 rpm
12	1200 rpm

Stability of the stirring speed setpoint (600 ml of water in a 1000 ml glass flask above 200 rpm) ± 3.0%

Top Plate	Max Recommended Flask Size	Max Weight on Top Plate
Aluminum	4 liters	40 lbs
Stainless Steel	4 liters	40 lbs

Ring Stand:
Accepts rod sizes 0.375" - 0.500" (9.5mm - 12.7mm).

Environmental Conditions

Operating: 0°C to 27°C; 20% to 80% relative humidity, non-condensing.

Installation category II (overvoltage) in accordance with IEC 664. Pollution degree 2 in accordance with IEC 664.

Altitude Limit: 2,000 meters.
Storage: -25°C to 65°C
10% to 85% relative humidity

Declaration of Conformity

(for 220-240 volt, -33 CE models only)

Barnstead International hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN 61000-3-2	Limits for harmonic current emissions
	EN 61000-3-3	Limits for voltage fluctuations and flicker
	EN 61326-1	Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
Safety:	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
	EN 61010-2-010	Part II: Particular requirements for laboratory equipment for the heating of materials (Hot Plates and Stirring Hot Plates)
	EN 61010-2-051	Part II: Particular requirements for laboratory equipment for mixing and stirring (Stirrers and Stirring Hot Plates)

per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Electrothermal Engineering Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

Introduction

Please read all the information in this manual before operating the unit.

Your Barnstead|Thermolyne RT digital plate is a heating and/or stirring plate designed for laboratory procedures requiring precise control of temperature and stirring speed. Each RT model includes a digital display for monitoring temperature. The hot plate is capable of producing accurately controlled top plate temperatures from 4°C through 350°C. The temperature is controlled at the plate surface by an internal Type K thermocouple sensor, or the solution temperature may be controlled by utilizing the included 6" PFA encapsulated ungrounded stainless steel Type K thermocouple probe (for higher temperature applications.) A 6" or 10" general purpose stainless steel immersion probe, or a chemical-resistant 7" solid Teflon® immersion probe may be ordered separately. The stirrer will accurately maintain stirring speeds from 50 rpm up to 1200 rpm. The top plate on the RT units are aluminum or stainless steel, and are suitable for use with glass or metal vessels and sand baths.

An over temperature protection (OTP) circuit can be set using the adjustment on the front face of the unit. The OTP setpoint can be displayed by adjusting the OTP control by more than 5%.

Your RT digital plate may be used for general purpose heating applications and/or general laboratory mixing of solutions, including sample preparation, heating reagents, melting paraffin, warming resinous chemicals, content analysis, solvent evaporations, digestions, media preparation and sterilization, titrations, sand baths, and microscale chemistry applications.

General Usage

Do not use this product for anything other than its intended usage.

Principles of Operation

Each RT unit utilizes the latest microprocessor technology to deliver the most reliable, accurately controlled, stirring hot plate on the market.

Your RT hot plate and stirring hot plate has an electronic, closed-loop feedback control which will accurately maintain temperature setpoints from 4°C through 350°C.

The RT units use a Type K thermocouple for measuring the top plate temperature, OTP and the external probe. Both top plate surface and OTP temperature are measured with independent digital and analog circuits (top plate - digital circuit; OTP - analog circuit). This provides a significant increase in safety due to the redundancy of the circuits. Metal vessels and sandbaths can be heated on the RT digital plates.

The electronic stirring speed control will maintain the speed setpoint when the unit is loaded. The motor is combined with a powerful magnet to provide exceptional magnetic coupling with a stir bar.

Note
This stirring hot plate does not cool. The minimum temperature is 4°C if used in a cold room below 4°C.

Unpacking and Installation

Warning
Use a properly grounded electrical outlet of correct voltage and current handling capacity.

Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard.

Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite flammable concentrations of gases, vapors and/or liquids. Not rated for use in hazardous atmospheres.

If explosion proof models are required, contact Barnstead International at 1-800-553-0039 for more information.

Do not use in highly corrosive atmospheres; corrosive fumes and spills may damage top and internal components, creating shock hazard.

Note
Some misalignment of the motor bearings in this product may have occurred during shipping. Prior to using this product, run the stirrer at maximum speed for two hours to realign the bearings.

Unpacking

Remove your RT digital plate from the carton. Inspect to ensure that the unit has not been damaged during shipment. If the unit appears to have sustained shipping damage contact the distributor from whom you purchased this product or Barnstead International Customer Service at 800-553-0039. Check for stir bar (depending on model), remote probe (depending on model) and knob prior to discarding packaging.

The following items are included in the shipment:
RT Stirring Hot Plate, Hot Plate or Stirrer
Stir Bar - ZSX65A
Adapter (100V models only) - CEX42
Remote Probe - TCX16
Knob - KBX106
Operator's Manual - LT1363X1

If any of these items are missing from the carton, contact Barnstead International.

Remove and dispose of protective covering that may be on heating surface prior to using unit.

Installation

Set the unit on a flat, stable, non-combustible surface at least 12" away from combustible materials, and plug the cordset into a properly grounded electrical outlet of correct voltage and current handling capacity.

Operation

Warning
Use caution when heating volatile materials; top surface and element can reach the “Flash Point Temperature” of many chemicals. These hot plates and stirring hot plates are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.

Use appropriate hand and eye protection when handling hazardous chemicals.

“Caution: Hot Top. Avoid Contact.” The top plate of the unit can remain hot for some time after use. A “CAUTION - HOT TOP” light will remain on until top plate temperature cools to below 50°C.

Note
The solution temperature is approximately 25% cooler than the hot plate surface temperature. Applications can vary widely depending on boil point, heat losses and heated area.

Note
If the top plate temperature is 350°C and then is turned down to a setpoint less than 200°C, the temperature of the top will drop rapidly to 200°C. Because of the natural cooling characteristics of hot plates, the temperature of the top will drop much more gradually after the top plate temperature reaches 200°C.

When plugging in the RT plate and powering it up for the first time, you will see the software version, line frequency, and top type displayed briefly on the digital display.

There is no ON/OFF button on the RT plate. Simply turn the HEAT and/or STIR knobs clockwise to activate.

Setting the Stirring Speed

Your RT stirring hot plate or stirrer has an electronic feedback speed control which will maintain a speed setpoint from 50 rpm through 1200 rpm. The RT plates are equipped with a strong magnet and high torque motor which will draw a deep vortex in up to 1800 ml of water stirred in a 2 liter flask with a new 2" stir bar

To set the speed, turn the STIR knob to your desired setting. Turn the knob clockwise to increase the speed or counter-clockwise to decrease the speed. To discontinue stirring, turn knob counter-clockwise to OFF.

Setting the Temperature

Your RT stirring hot plate or hot plate has an electronic closed-loop feedback control which will accurately maintain temperature setpoints in 2° increments from 4°C to 150°C, and 5° increments from 150°C to 350°C. The temperature is controlled at the top plate by the internal sensor. A “CAUTION - HOT TOP” light on the front panel will illuminate whenever the top surface temperature exceeds 50°C.

Your RT plate will display the temperature in °C. When choosing a setpoint, the display will indicate the setpoint for 5 seconds, after which the display will flash until the desired setpoint is reached.

The display will alternate between “HOT” and “OFF”, and the “CAUTION - HOT TOP” light will flash until the top surface has cooled to below 50°C. Nothing will be displayed on the screen when the unit has been cooled below 50°C and the knob is turned to OFF.

Controlling Solution Temperature Using External Probe

To control the solution temperature plug the included probe or an ungrounded Type K thermocouple probe into the probe receptacle located on the right side of the unit. Be careful to observe the correct polarity of the probe connector when inserting probe. Place the probe into the solution. The display will indicate the setpoint temperature of the solution as measured by the probe, and the word “probe” on the front panel will be illuminated. The display will flash setpoint temperature until the solution is within 5% of setpoint temperature. Keep in mind, drafts and other temperature fluctuations will affect temperature accuracy/stability.

The external probe offers more exact temperature control than regulating the top plate by the internal sensor. If you need to maintain a precise setpoint it is recommend to use a probe to control the solution temperature instead of controlling by the top plate temperature.

When using a probe with the RT hot plate or stirring hot plate it is recommended that a clamp on a support rod be used to hold the probe in the solution and not in the vortex.

Note

Boiling times are dependent on solution volume and the surface area of the flask that is exposed to the hot plate. For example, when heating the same amount of solution in a 1L flask vs. a 500 ml flask, the solution will heat about 20% faster.

To Achieve Fast Heat-up of Large Volumes

If you are heating larger volumes, faster heating can be achieved by turning the heat control knob to maximum temperature until the solution starts to heat, and then turning the setpoint back to your desired top plate temperature. The display will flash the new setpoint until that temperature has been reached. This happens automatically with the control when using the remote probe.

Heating Small Volumes

Preheating small volumes is not necessary as it may cause the temperature to overshoot the desired setpoint.

Heating Metal Vessels and Sand Baths

The RT stirring hot plate or hot plate is capable of precisely regulating the top plate temperature, metal vessels and sand baths may be heated safely.

Over-Temperature Protection (OTP) Operation

RT stirring hot plates or hot plates come equipped with an over-temperature protection control. This control is independent of the main temperature control and serves as a safety limit for the top plate temperature. The over-temperature set point can be adjusted using a small straight-blade screwdriver to rotate the OTP shaft located on the front of the unit. During over-temperature set point adjustment, the unit will display the set point in 10° increments on the HEAT display. The over-temperature set point is generally adjustable between 60°C and 380°C. To avoid unnecessary cycling of over-temperature control, the main control will limit itself to 30°C below the over-temperature set point. For example, with an over-temperature set point of 130°C, the main control can be adjusted up to 100°C. Note that the over-temperature set point is designed to limit the top plate temperature; internal components may exceed this setting.

General Cleaning Instructions

Keep top surface clean. Use a non-abrasive cleaner. Unplug unit and remove spills promptly. Do not immerse unit for cleaning. Wipe exterior housing with lightly dampened cloth containing mild soap solution.

Troubleshooting

Error Codes

The following errors should not be addressed by the user. If any of the errors appear, contact Barnstead International Technical Service at 800-553-0039.

Displayed Message	Intended to Detect	Cause	Solution
E01	Internal thermocouple out of range.	Internal thermocouple not connected. Thermocouple open. Thermocouple connected backwards (reversed polarity).	Ensure proper connection and polarity of thermocouple. Replace thermocouple (attached to element). Ensure proper connection and polarity of thermocouple.
E02	Excessive top heat-up time.	Internal thermocouple short circuit. Failure in Internal thermocouple. Failure in Element. Failure in optocoupler/ triac circuit.	Remove short. Replace thermocouple (attached to element). Replace Element. Replace Control Board.
E06	OTP detected over Temperature condition, relay has opened, power to the element removed.	OTP thermocouple temperature is above the OTP potentiometer setting. OTP thermocouple temperature is above the OTP potentiometer setting. OTP thermocouple not connected.	Increase OTP potentiometer setting. Reduce Hotplate set point. Ensure proper connection and polarity of OTP thermocouple.
E11	AC power not properly detected.	Failure in AC power detection (zero cross) circuit.	Replace Control Board.
E12	Locked rotor in stirring control.	Locked rotor condition. Failure in motor. Failure in motor optocoupler/ triac circuit. Failure in motor optical encoder/encoder wheel.	Free locked rotor. Replace motor. Replace Control Board. Replace motor optical encoder.

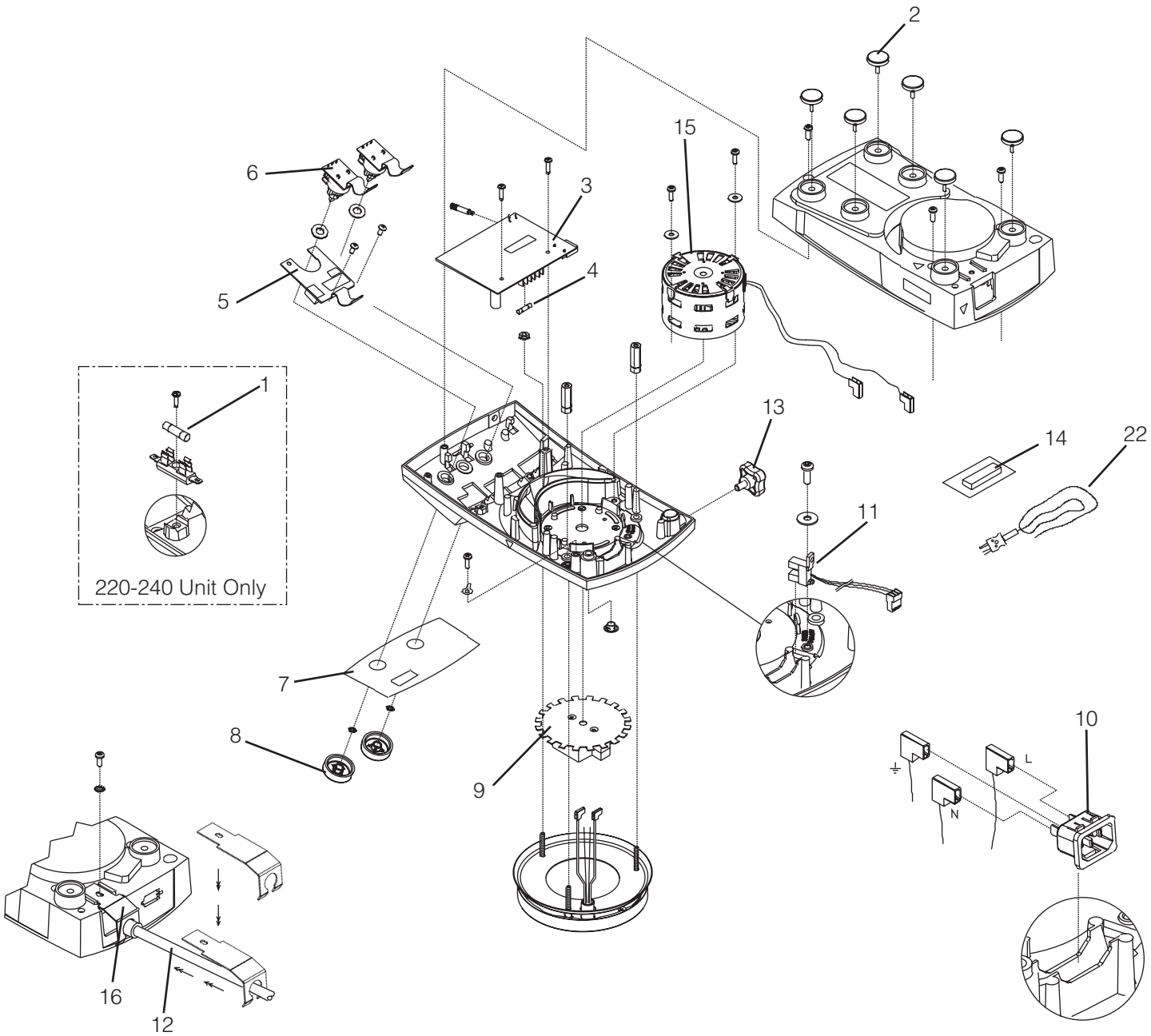
Error Code Descriptions

Errors E01 and E02 are heating errors. Error Handler will lock out heating functions if heating error is detected. Stirring functionality is unaffected. Unplugging the unit will clear Errors E01 and E02.

Error 06 is simply an indicator that the top plate temperature is being limited by the Over Temperature Protection (OTP) Control.

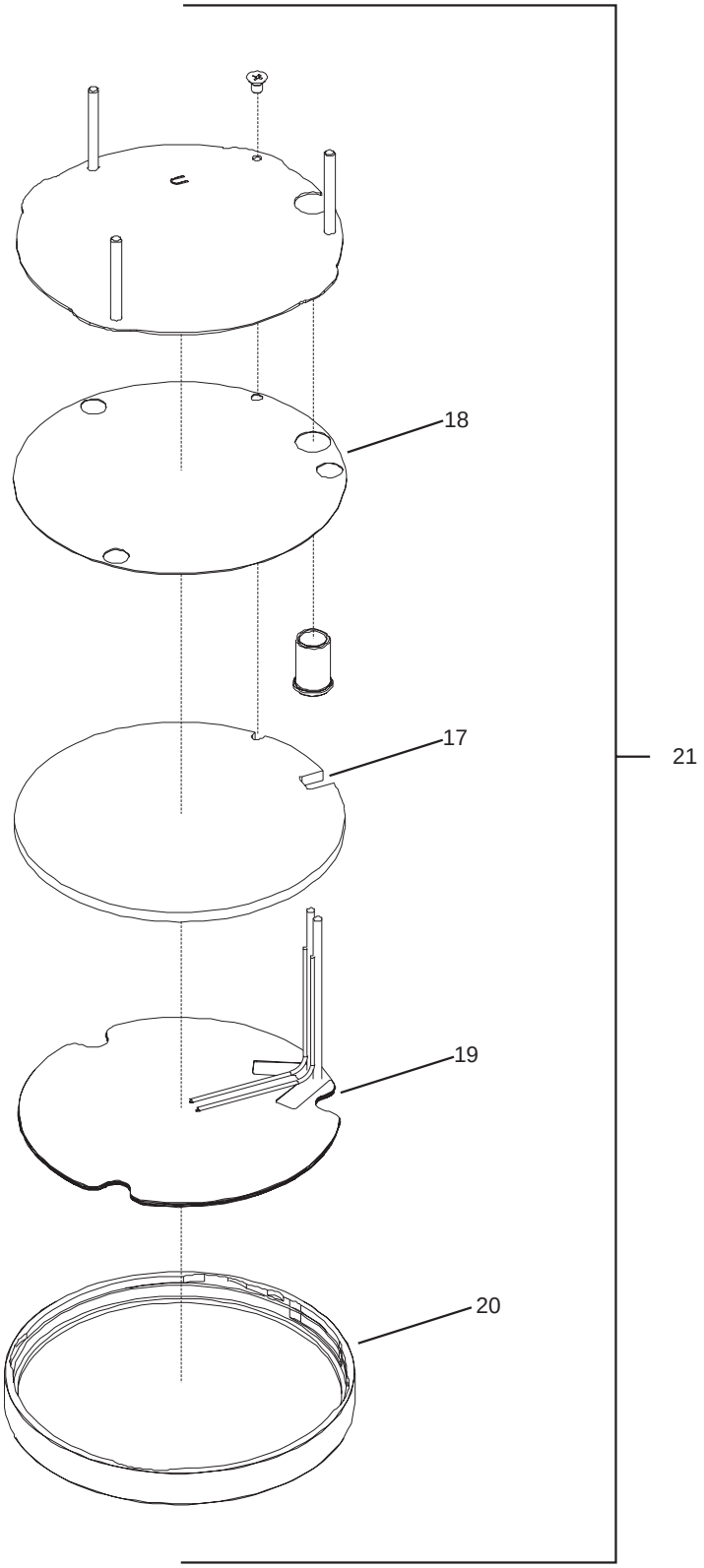
Errors E11 and E12 are stirring errors. Error Handler will lock out stirring functions if stirring error is detected. To avoid boil over, the unit will cease heating. Unplugging the unit will clear Error E11 and E12.

Exploded Views

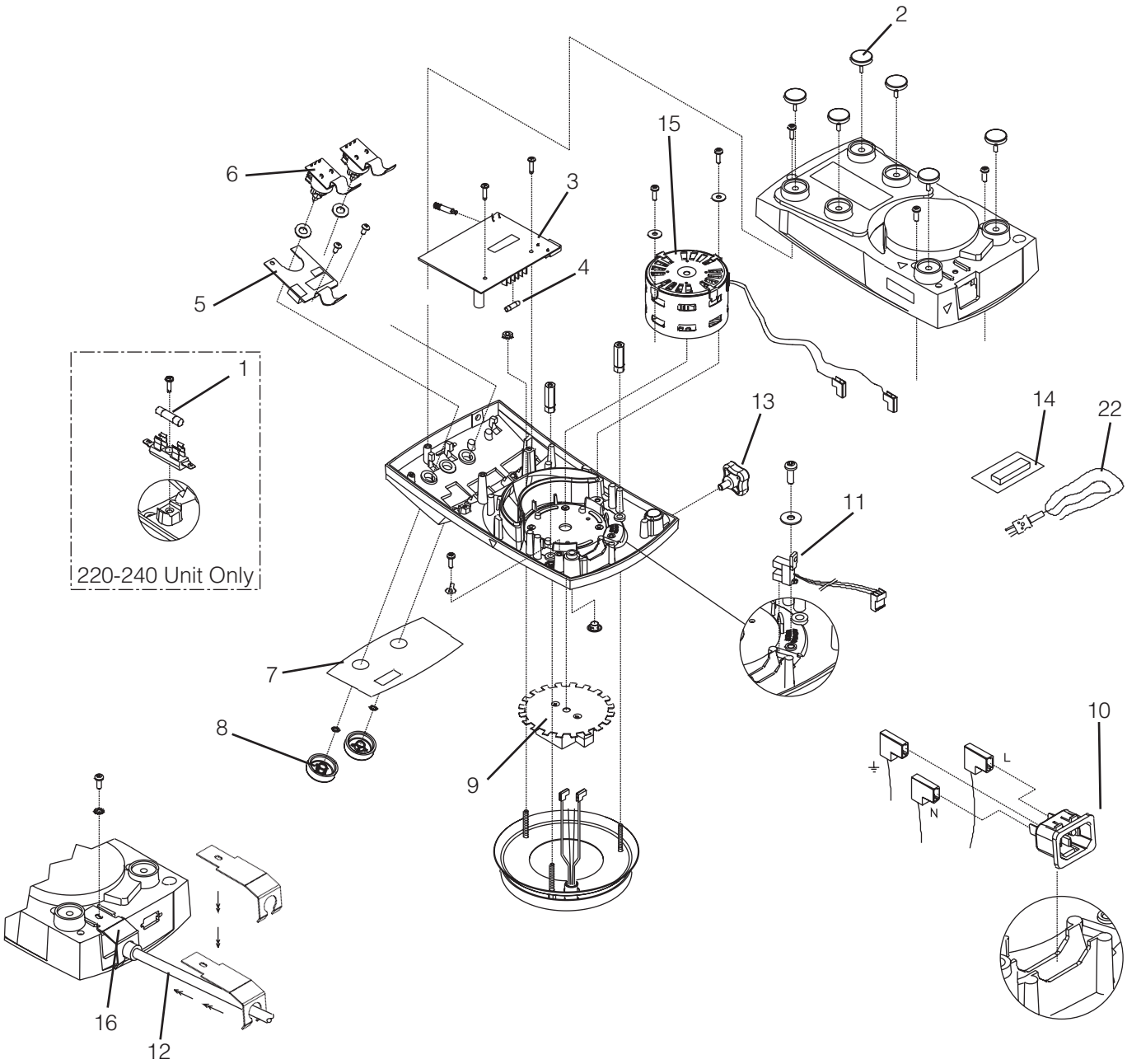


Aluminum Top Stirring Hot Plate - Exploded View

EXPLODED VIEWS

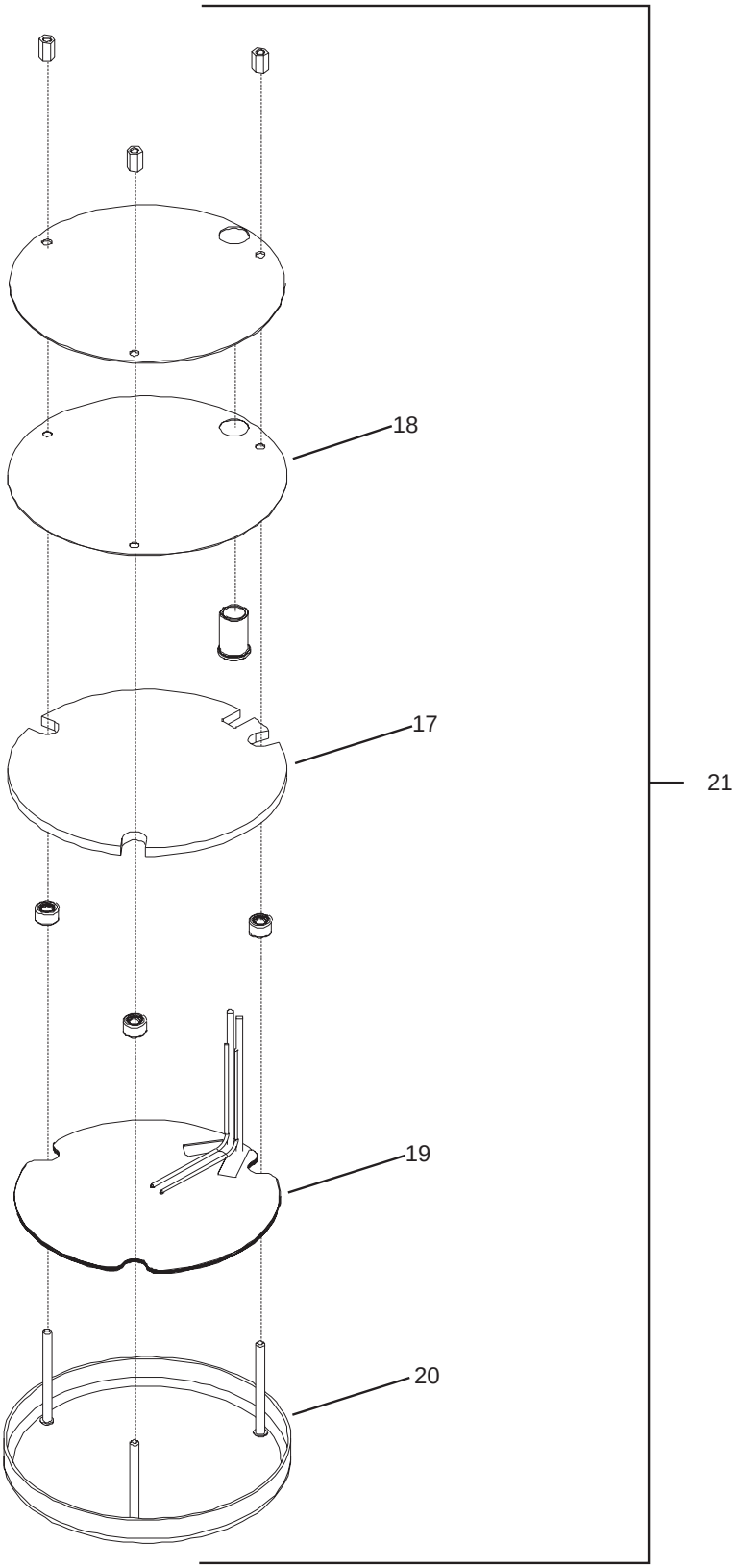


Aluminum Top Stirring Hot Plate/Hot Plate - Top Assembly

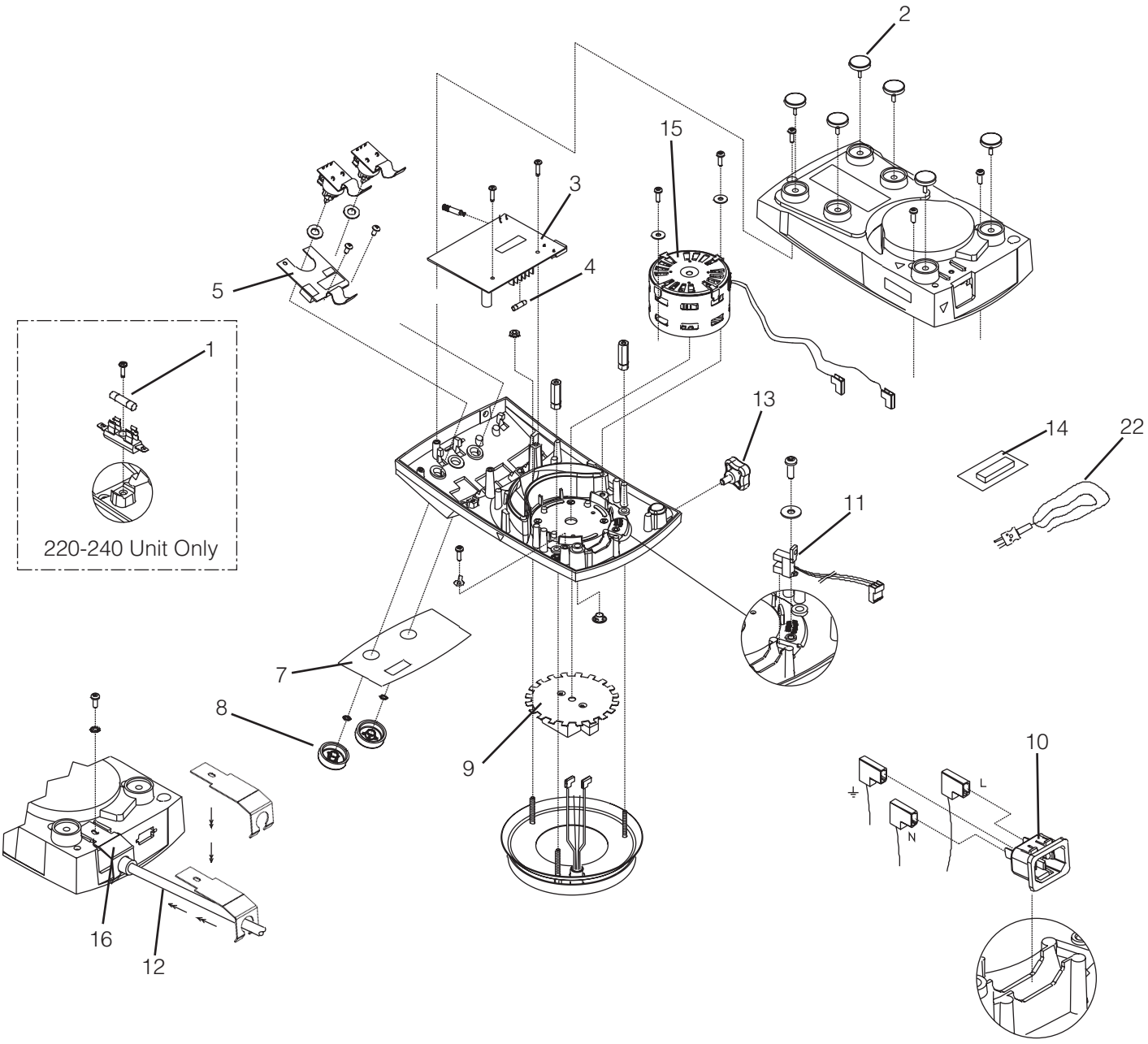


Stainless Steel Stirring Hot Plate - Exploded View

EXPLODED VIEWS

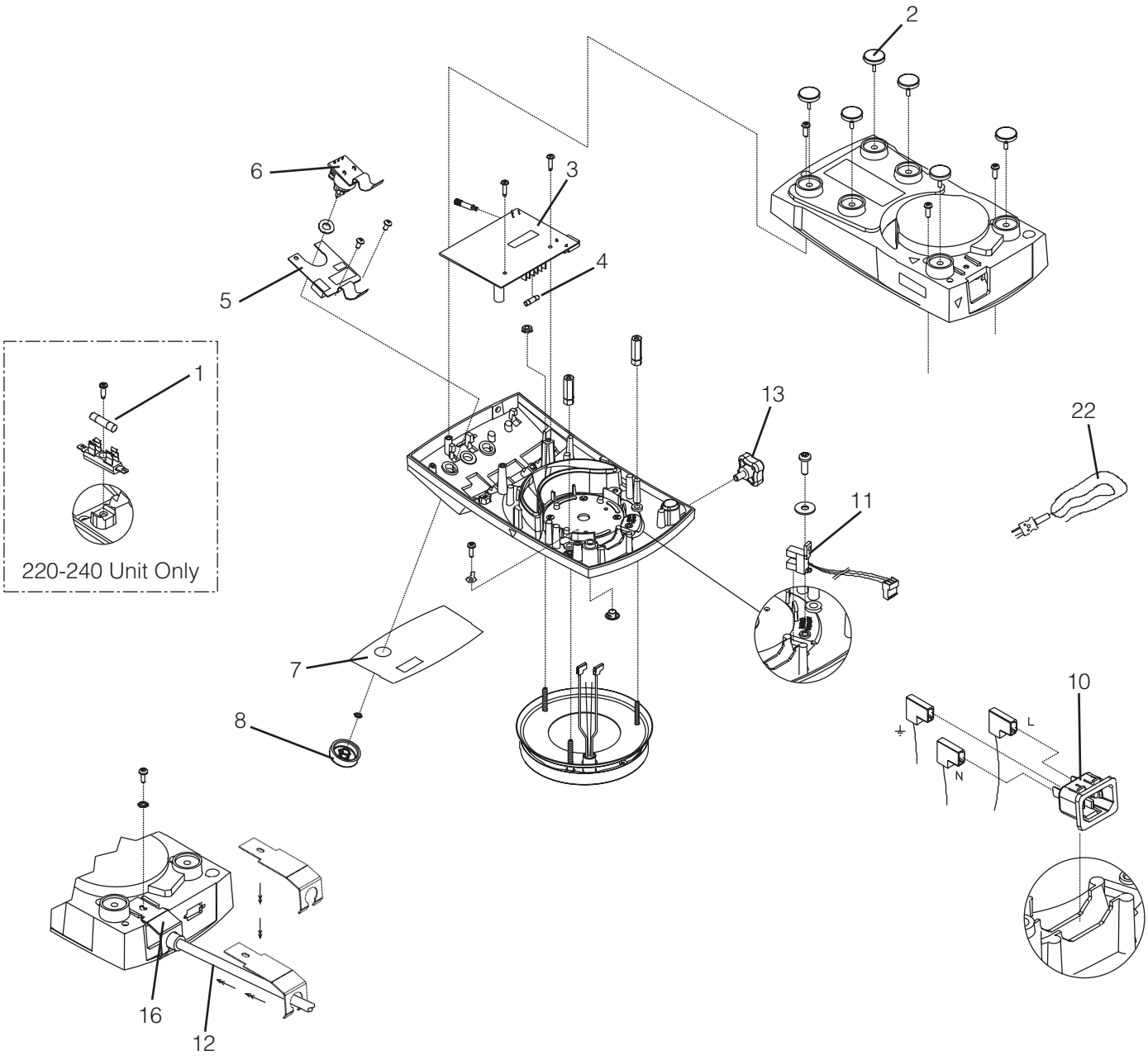


Stainless Steel Stirring Hot Plate - Top Assembly

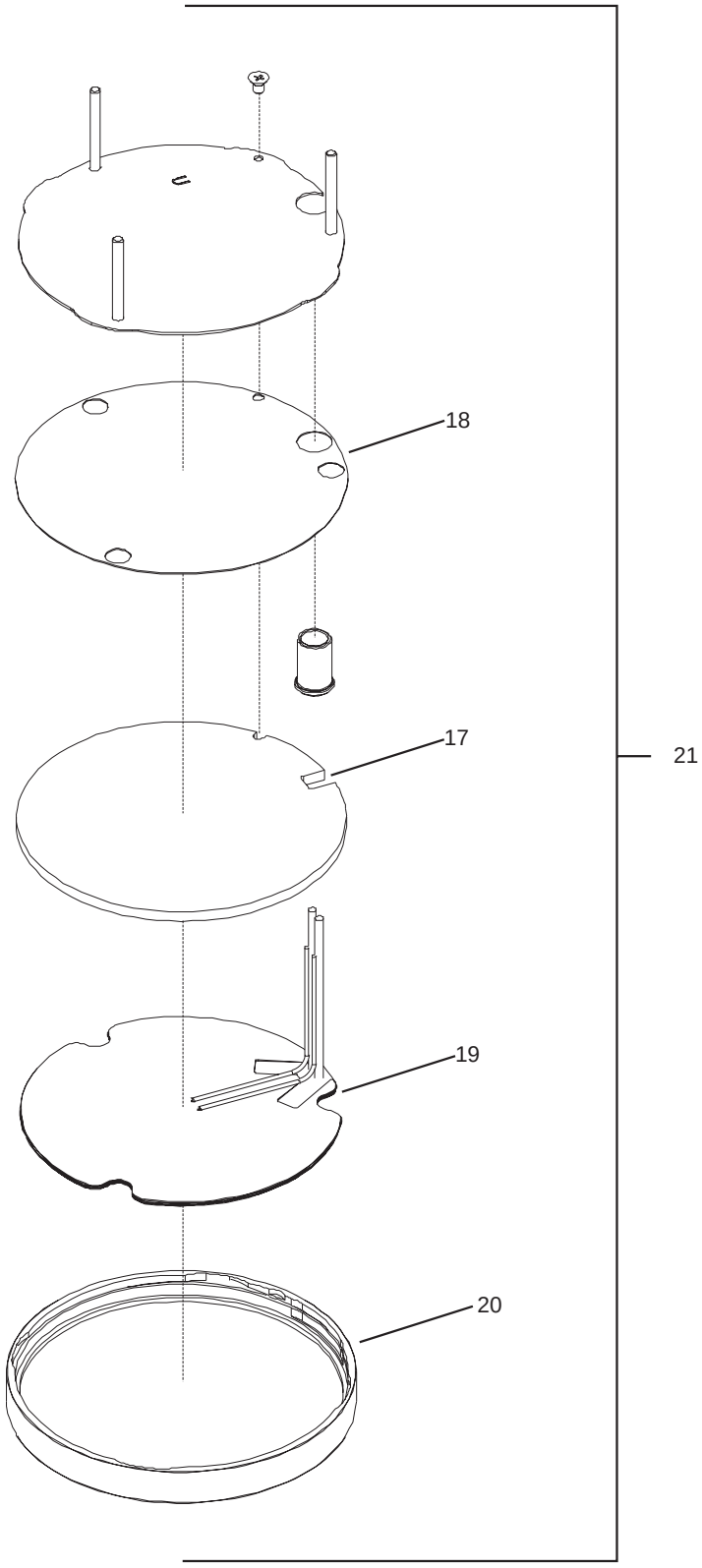


Stainless Steel Stirrer - Exploded View

EXPLODED VIEWS

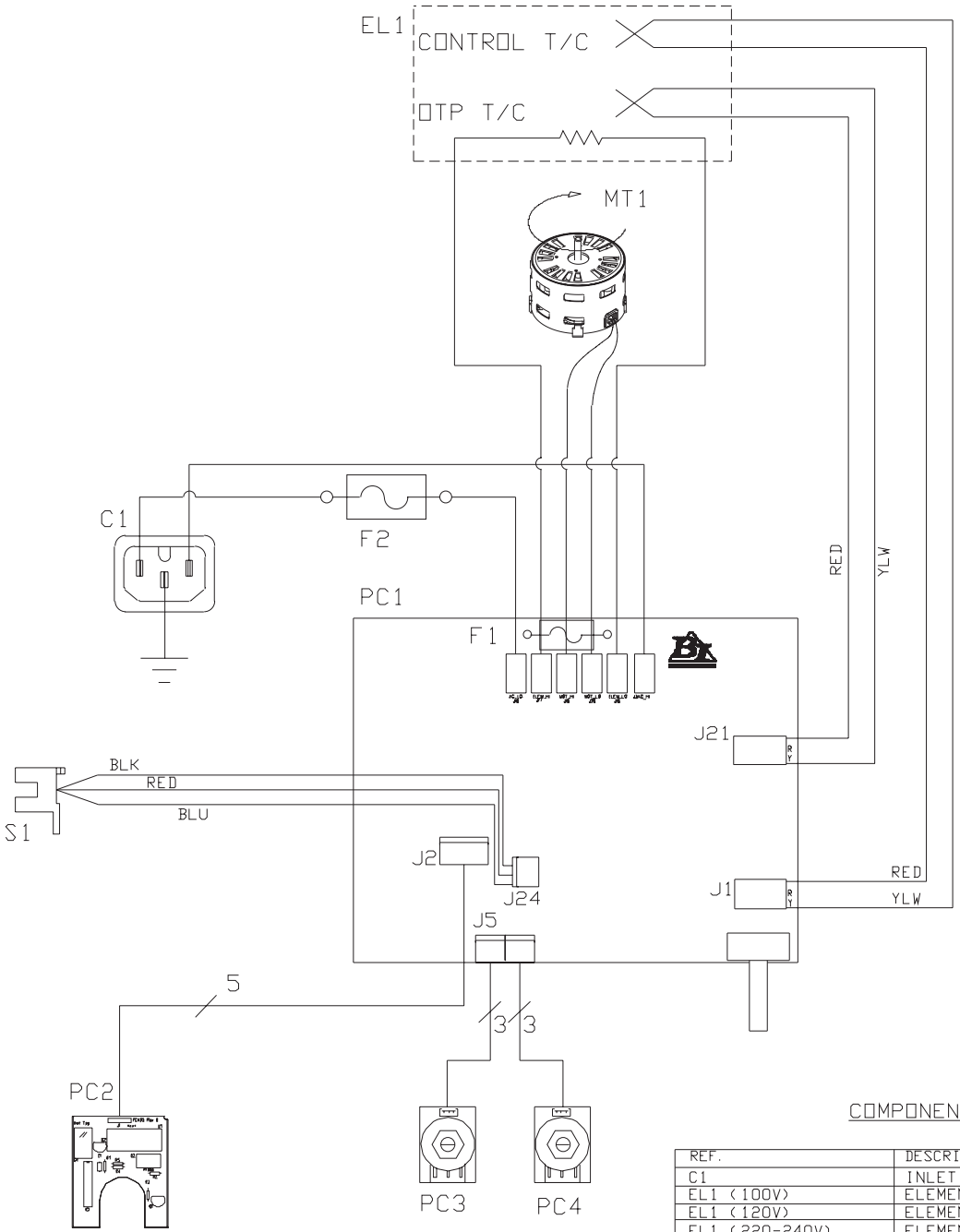


Aluminum Top Hot Plate - Exploded VIew



Aluminum Top Hot Plate - Top Assembly

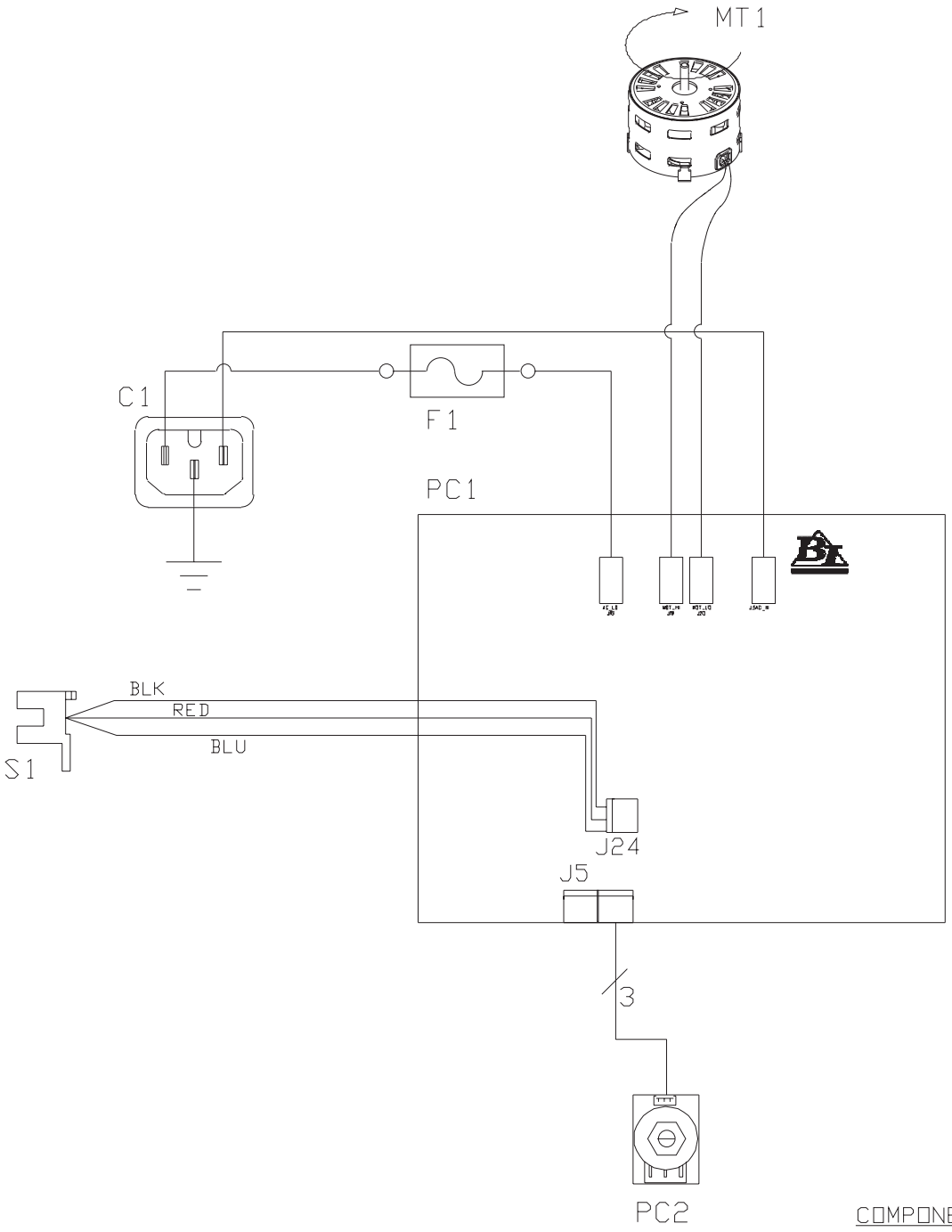
Wiring Diagrams



COMPONENT CHART

REF.	DESCRIPTION	
C1	INLET	CEX373
EL1 (100V)	ELEMENT	ELX58
EL1 (120V)	ELEMENT	ELX57
EL1 (220-240V)	ELEMENT	ELX59
F1&F2 (220-240 ONLY)	FUSE	261575
MT1 (100-120V)	MOTOR	MTX116
MT1 (220-240V)	MOTOR	MTX119
PC1	CONTROL PCB	PC1363X1
PC2	DISPLAY PCB	PC1363X2
PC3	POTENTIOMETER PCB	PC1313X1
PC4	POTENTIOMETER PCB	PC1313X1
S1	SPEED SENSOR	SC1313X1
F1 (120V-100V)	FUSE	266058

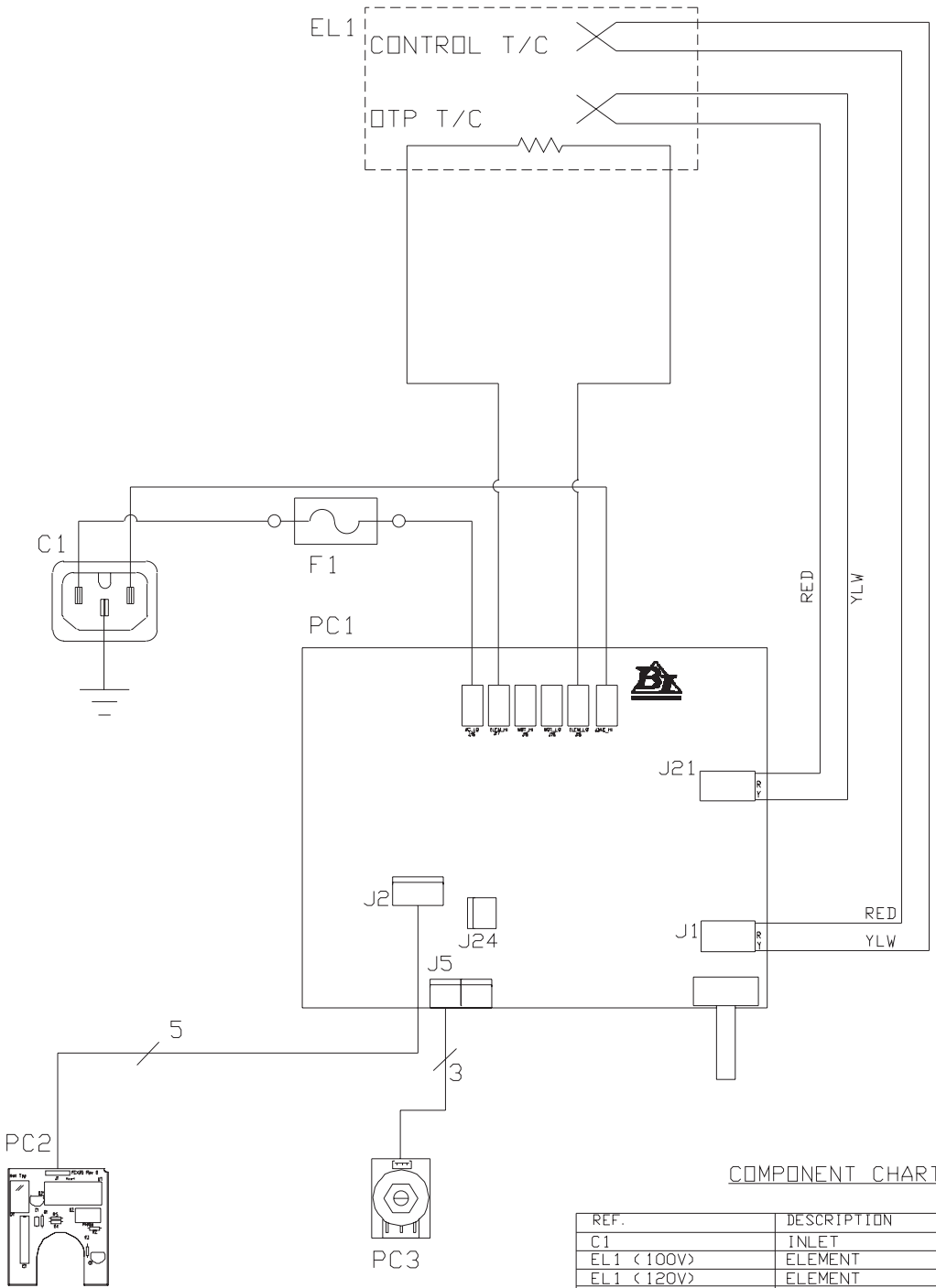
Aluminum/Stainless Steel Top Stirring Hot Plate Wiring DIagram



COMPONENT CHART

REF.	DESCRIPTION	
C1	INLET	CEX373
F1 (220-240 ONLY)	FUSE	261575
MT1 (100-120V)	MOTOR	MTX116
MT1 (220-240V)	MOTOR	MTX119
PC1	CONTROL PCB	PC1389X1
PC2	POTENTIOMETER PCB	PC1313X1
S1	SPEED SENSOR	SC1313X1

Stainless Steel Top Stirrer Wiring DIagram



COMPONENT CHART

REF.	DESCRIPTION	
C1	INLET	CEX373
EL1 (100V)	ELEMENT	ELX58
EL1 (120V)	ELEMENT	ELX57
EL1 (220-240V)	ELEMENT	ELX59
F1 (220-240 ONLY)	FUSE	261575
PC1	CONTROL PCB	PC1363X1
PC2	DISPLAY PCB	PC1363X2
PC3	POTENTIOMETER PCB	PC1313X1
S1	SPEED SENSOR	SC1313X1

Aluminum Top Hot Plate Wiring DIagram

Replacement Parts

Key	Model 1363 Part No.	Model 1387 Part No.	Description
1	261575	261575	PC Board Fuse - 220-240V
2	FTX34	FTX34	Foot (6)
3	PC1363X4	PC1387X1	Control Board - 100V, 120V
3	PC1363X5	PC1387X2	Control Board - 220-240V
4	266058	266058	PC Board Fuse - 100V, 120V
4	261575	261575	PC Board Fuse - 220-240V
5	PC1363X2	PC1363X2	Display Board
6	PC1363X3	PC1363X3	Speed/Heat Adjustment Board (2)
7	DLX302	DLX302	Dial Plate
8	KBX108	KBX108	Knob
9	MG1364X1	MG1364X1	Magnet
10	CEX373	CEX373	Power Entry Module
11	SC1313X1	SC1313X1	Speed Sensor
12	CRX106	CRX106	Cord Set - 100 V, 120V
12	CRX104	CRX104	Cord Set - 220-240V
13	KBX106	KBX106	Knob
14	ZSX65A	ZSX65A	Stir Bar
15	MTX116	MTX116	Motor - 120V, 100V
15	MTX119	MTX119	Motor - 220-240V
16	BC1313X1	BC1313X1	Retaining Clip - 100V, 120V
16	BC1313X2	BC1313X2	Retaining Clip - 220-240V
17	JNX39	JNX40	Insulation
18	JSX136	JSX138	Mica
19	EL1363X1	EL1363X1	Heating Element - 120V - w/thermocouple
19	EL1363X2	EL1363X2	Heating Element - 100V - w/thermocouple
19	EL1363X3	EL1363X3	Heating Element - 220-240V - w/thermocouple
20	PTX16	PTX14	Top Plate
21	EL1364X1	EL1388X1	Hot Plate Top Assembly - 120V
21	EL1364X2	EL1388X2	Hot Plate Top Assembly - 100V
21	EL1364X3	EL1388X3	Hot Plate Top Assembly - 220-240V
22	TCX16	TCX16	6” Chemically resistant stainless steel probe with 8” PFA encapsulation, LSA Type K

REPLACEMENT PARTS

Key	Model 1389 Part No.	Model 1399 Part No.	Description
1	261575	261575	PC Board Fuse - 220-240V
2	FTX34	FTX34	Foot (6)
3	PC1389X2	PC1399X1	Control Board - 100V, 120V
3	PC1389X3	PC1399X2	Control Board - 220-240V
4	266058	266058	PC Board Fuse - 100V, 120V
4	261575	261575	PC Board Fuse - 220-240V
5	----------	PC1363X2	Display Board
6	PC1363X3	PC1363X3	Speed/Heat Adjustment Board (2)
7	DLX310	DLX310	Dial Plate
8	KBX108	KBX108	Knob
9	MG1364X1	----------	Magnet
10	CEX373	CEX373	Power Entry Module
11	SC1313X1	----------	Speed Sensor
12	CRX106	CRX106	Cord Set - 100 V, 120V
12	CRX104	CRX104	Cord Set - 220-240V
13	KBX106	KBX106	Knob
14	ZSX65A	----------	Stir Bar
15	MTX116	----------	Motor - 120V, 100V
15	MTX119	----------	Motor - 220-240V
16	BC1313X1	BC1313X1	Retaining Clip - 100V, 120V
16	BC1313X2	BC1313X2	Retaining Clip - 220-240V
17	----------	JNX39	Insulation
18	----------	JSX136	Mica
19	----------	EL1363X1	Heating Element - 120V - w/thermocouple
19	----------	EL1363X2	Heating Element - 100V - w/thermocouple
19	----------	EL1363X3	Heating Element - 220-240V - w/thermocouple
20	PTX14	PTX16	Top Plate
21	----------	EL1364X1	Hot Plate Top Assembly - 120V
21	----------	EL1364X2	Hot Plate Top Assembly - 100V
21	----------	EL1364X3	Hot Plate Top Assembly - 220-240V
22	----------	TCX16	6” Chemically resistant stainless steel probe with 8” PFA encapsulation, LSA Type K

Accessories

Part No.	Description
TC732X1	General purpose, hi-temp immersion probe with 6” (15.24 cm) stainless steel sheath
TC732X2	General purpose, hi-temp immersion probe with 10” (25.40 cm) stainless steel sheath
TC727X2	Chemically-resistant immersion probe with 7” (17.78 cm) Teflon sheath
711S	Non-Mercury Thermometer 20 to 100°C Range - 76 mm immersion
647-1S	Non-Mercury Thermometer 0 to 110°C Range - 35 mm immersion
1007-3BLS	Non-Mercury Thermometer -1 to 201°C Range - 76 mm immersion
615-3SC	Mercury Teflon Coated Thermometer -10 to 200°C Range - 76 mm immersion
260CW-3BLS	Non-Mercury Thermometer -10°C to 260°C Range - 76 mm immersion
ERT605	Waterproof Digital Thermometer -50 to 280°C
7077	Thermometer Clamp
7068	90° Clamp Holder
1000-2	12” Aluminum Rod
7078	Large Clamp
7079	Small Clamp (up to 1/2”)

NOTE: Thermometers are N.I.S.T. traceable for calibration of the remote probe, however, they do not come with N.I.S.T. certificates. To obtain a certificate before ordering, call Barnstead International Customer Service at 1-800-553-0039.

Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Barnstead International** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead International**, please contact our Customer Service Department for a “Return Goods Authorization” number (RGA). Material Returned without an RGA number will be returned.

Two Year “Bumper to Bumper” Warranty

Barnstead International (“BARNSTEAD”) warrants that a product manufactured by Barnstead shall be free of defects in materials and workmanship for two (2) years from the first to occur of (i) the date the product is sold by BARNSTEAD or (ii) the date the product is purchased by the original retail customer (the “Commencement Date”). Except as expressly stated above, BARNSTEAD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of BARNSTEAD must perform all warranty inspections. In the event of a defect covered by BARNSTEAD’s warranty, BARNSTEAD shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by BARNSTEAD within the continental United States or Canada, BARNSTEAD shall provide provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

BARNSTEAD’s warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than BARNSTEAD or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of BARNSTEAD.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the BARNSTEAD factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, BARNSTEAD will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to BARNSTEAD’s factory, it shall be sent prepaid and a prior written authorization from BARNSTEAD assigning a Return Materials Number to the product or part shall be obtained.

IN NO EVENT SHALL BARNSTEAD BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

The name of the authorized Barnstead International dealer nearest you may be obtained by calling 1-800-446-6060 (563-556-2241) or writing to:

BarnsteadInternational

Your Lab Starts Here

ISO 9001 REGISTERED

2555 Kerper Boulevard
P.O. Box 797
Dubuque, Iowa 52001-0797
Phone: 563-556-2241 or 800-553-0039
Fax: 563-589-0516
E-mail: mkt@barnstead.com
www.barnstead.com