

Type 18400

Nuova II Stirring Hot Plate

Operation Manual
and Parts List
Series 757

<u>Model</u>	<u>Volts</u>
SP18424	100
SP18425	120
SP18420	220-240
SP18420-26	220-240

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IMPORTANT INFORMATION

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

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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.



Caution

KEEP TOP SURFACE CLEAN. Use a nonabrasive cleaner. Alkali spills, hydrofluoric acid spills or phosphoric acid spills may damage top. Unplug unit and remove spills promptly. This unit is not recommended for use in highly corrosive atmospheres. Corrosive spills and fumes may damage top and internal components. Space unit 12 inches away from combustible materials under any conditions. Do not place objects against control knobs. **DO NOT** use metal foil, metal vessels or other insulating material on top plate. Do not operate hot plate or stirring hot plate without a load centered on top plate. Top plate can be damaged. Do not exceed 20 lbs. total load weight.

Your Thermolyne Nuova II Stirring 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.

Warnings

To avoid personal injury:

1. Do not immerse unit for cleaning.
2. As with all laboratory equipment, appropriate safety clothing, glasses, gloves and coats should be worn when operating hot plates and stir plates. Always use appropriate hand and eye protection when handling hazardous chemicals.
3. **DO NOT** remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.
4. Do not use in the presence of flammable or combustible chemicals; top surface and element can reach the "Flash Point Temperature" of many chemicals. **THESE STIRRING AND/OR HOT PLATES ARE NOT EXPLOSION PROOF.** Fire or explosion may result. Unit contains components which may ignite such materials.
5. "Caution: Hot Surface. Avoid Contact."

To avoid electrical shock:

1. Always use a properly grounded electrical outlet with correct voltage and current handling capacity.
2. Always disconnect the unit from the power supply before servicing.
3. Refer servicing to qualified personnel.

Please note the following WARNINGS:

Warning

This warning is presented for compliance with California Proposition 65 and other regulatory agencies and only applies to the insulation in this product. This product contains refractory ceramic, refractory ceramic fiber or fiberglass insulation, which can produce respirable dust or fibers during disassembly. Dust or fibers can cause irritation and can aggravate preexisting respiratory diseases. Refractory ceramic and refractory ceramic fibers (after reaching 1000°C) contain crystalline silica, which can cause lung damage (silicosis). The International Agency for Research on Cancer (IARC) has classified refractory ceramic fiber and fiberglass as possibly carcinogenic (Group 2B), and crystalline silica as carcinogenic to humans (Group 1).

The insulating materials can be located in the door, the hearth collar, in the chamber of the product or under the hot plate top. Tests performed by the manufacturer indicate that there is no risk of exposure to dust or respirable fibers resulting from operation of this product under normal conditions. However, there may be a risk of exposure to respirable dust or fibers when repairing or maintaining the insulating materials, or when otherwise disturbing them in a manner which causes release of dust or fibers. By using proper handling procedures and protective equipment you can work safely with these insulating materials and minimize any exposure. Refer to the appropriate Material Safety Data Sheets (MSDS) for information regarding proper handling and recommended protective equipment. For additional MSDS copies, or additional information concerning the handling of refractory ceramic products, please contact the Customer Service Department at Barnstead|Thermolyne Corporation at 1-800-553-0039.

Introduction



Warning

Do not use in the presence of flammable or combustible chemicals; top surface and element can reach the “Flash Point Temperature” of many chemicals. THESE STIRRING AND/OR HOT PLATES ARE NOT EXPLOSION PROOF. Fire or explosion may result. Unit contains components which may ignite such materials.



Caution

Space unit 12 inches from combustible walls under any condition.

The Type 18400 Nuova II Stir Plate is a magnetic stirring hot plate designed to provide a uniform source of heat from 38°C to 371 °C (700°F) and stirring capability from 100 to 1000 rpm. A bimetal control keeps the surface temperature constant to $\pm 3^{\circ}\text{C}$ over most of the operating range ($\pm 6^{\circ}\text{C}$ at a setting of 1). Excellent speed control, especially at low speeds, is achieved by a unique system of eddy current braking.

Electrical Ratings

SP18424	100 Volts	8.5 Amps
848 Watts	50/60 Hz	
SP18425	120 Volts	7.3 Amps
858 Watts	50/60 Hz	
SP18420	220-240 Volts	3.6 Amps
851 Watts	50/60 Hz	
SP18420-26	220-240 Volts	3.6 Amps
851 Watts	50/60 Hz	

Operation



Warning

Space the unit 12" from combustible walls under any condition.



Caution

Place the vessel and its contents directly on the glass-coated top plate prior to turning the heat control knob to "ON" and while cooling the unit down. Failure to do so could result in the glass material separating from the metal core of the top.



Note

Some misalignment of the motor bearings in this product may have occurred during shipping and handling. Prior to first use, the stirrer should be run at maximum speed for 10 minutes to realign the motor bearings.

Both the "TEMPERATURE" and "SPEED" controls are combination "ON-OFF" switches and setting selectors. The fully counterclockwise positions are "OFF." To select a temperature, turn the control clockwise to the desired setting. The numbers correspond to increments of approximately 40°C; e.g. 5 gives approximately 200°C. The lighted "HEAT" indicator shows when power is being supplied to the heating element. This is a cycle light. Unit can be hot with this light off. To select a speed, turn the "SPEED" control clockwise until the desired mixing action is achieved. The lighted "STIR" indicator shows when the unit is stirring. **Do not exceed 20 lbs. total load weight.**

Maintenance and Servicing



Warning

“Caution: Hot Surface. Avoid Contact.”
Refer servicing to qualified personnel.
Disconnect from power supply before servicing.

Cleaning Contact Points

Bimetal control contact points may need cleaning after severe or extended use. To clean the contact points:

1. Disconnect the hot plate from power supply.
2. Turn the hot plate upside down and remove bottom cover.
3. The contact points are accessible now and may be cleaned with fine sandpaper or a contact file.
4. If contact points are severely pitted or burned, replacement is suggested at this time (refer to the section “Replacing the control”).
5. Replace bottom cover and secure.
6. Turn the hot plate upright and reconnect to power supply.

Replacing Adjusting-Shaft Insulator

(See Control Assembly drawing.)

1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove the retaining clip.
4. Loosen set screw on stop collar and turn the adjusting shaft out of the control to remove insulator.
5. Insert new insulator. Turn the adjusting shaft into the control until the contacts make contact. (Note: Be sure that the washer/spacer is still positioned against the backside of the knob.)
6. Slide collar back against spring. Reinstall retaining clip.

7. Turn shaft out until .015" dimension is achieved, as shown.
8. Recalibrate the control according to the "Recalibrating the Control" section.

Replacing Heater Coil

1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove nut and washer from contact stud, then remove one end of heater coil.
4. Remove opposite end of heater coil by sliding terminal off of the tab.
5. Install new heater coil.
6. Replace bottom cover and secure.
7. Turn hot plate upright and reconnect to power supply.

Replacing Cycle Light

1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove clip from cycle light. Disconnect the two wires from cycle light.
4. Remove the cycle light.
5. Insert new cycle light and secure with clip.
6. Reconnect wires to the cycle light.
7. Replace bottom cover and secure.

8. Turn hot plate upright and reconnect to power supply.

Replacing the Control

1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove knob and washer/spacer from adjusting shaft.
4. Disconnect the two wires from the control.
5. Remove the two hex nuts retaining the control to the element.
6. Remove control from the element.
7. Remove the heater coil. Install the heater onto the new control. Adjust the position of the heater coil as described in the "Replacing the Heater Coil" section.
8. Secure the new control to the element with the two hex nuts.
9. Reconnect the two wires disconnected in step 4.
10. Replace the washer/spacer onto the adjusting shaft.
11. Recalibrate the unit according to the "Recalibrating the Control" section.

Replacing the Heating Element

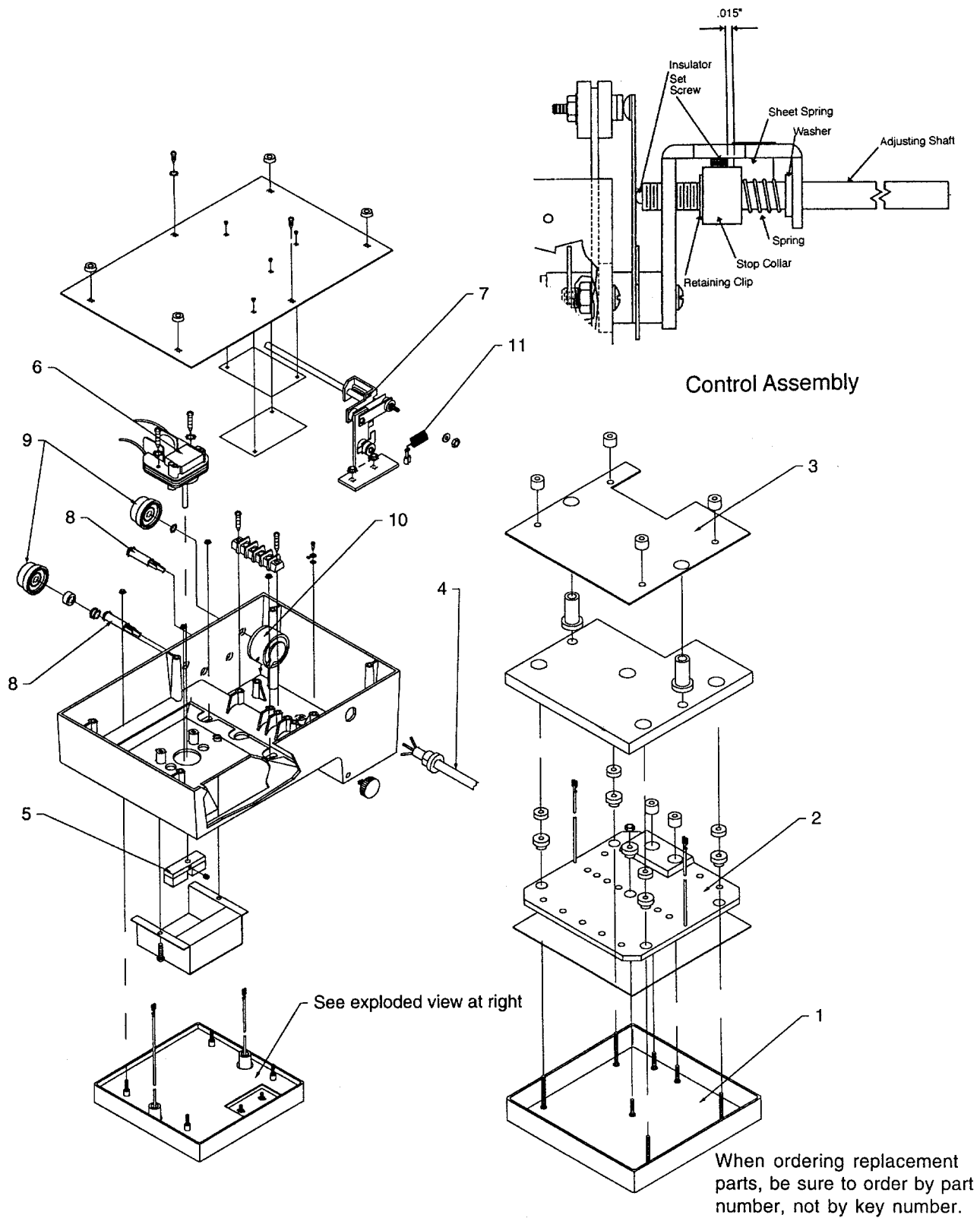
1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.

3. Remove the knob and washer/spacer from the adjusting shaft.
4. Disconnect the two wires from the control.
5. Remove the two hex nuts retaining the control to the element.
6. Remove the control from the element.
7. Disconnect two element lead wires from the terminal block.
8. Remove the four hex nuts retaining the top plate assembly.
9. Remove the top plate assembly from the unit.
10. Disassemble the top plate assembly.
11. Reassemble the top plate assembly with the new element according to the exploded view.
12. Reinstall the top plate assembly onto the unit. Reinstall the hex nuts to secure the top plate assembly to the unit.
13. Replace the control and secure with two hex nuts.
14. Reconnect the wires to their correct positions.
15. Reinstall the washer/spacer and knob onto the adjusting shaft.
16. If necessary, readjust the heater coil, making it parallel to the bimetal contact arm with 13/64" clearance.
17. Replace the bottom cover and secure.
18. Turn the hot plate upright and reconnect to the power supply.

Recalibrating the Control

(See Control Assembly drawing.)

1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove the knob from the adjusting shaft by removing set screw.
4. Loosen the set screw in the stop collar.
5. Turn the shaft until the contacts just close and slide knob over shaft with the number "1" aligned with the pointer line.
6. Tighten the knob to the shaft. Leave 1/8" of space between the knob and the dial plate.
7. Turn the knob counterclockwise until the number "0" aligns with pointer line and readjust the stop collar in the "Off" position.
8. Tighten set screw on stop collar and check for free rotation of the control shaft between stops.
9. Replace bottom cover and secure.
10. Turn hot plate upright and reconnect to power supply.



Exploded View
 Series 757: Models: SP18420, SP18420-26, SP18424, SP18425

Replacement Parts List

Nuova II Stirring Plate, Series 757

Models: SP18424, SP18425, SP18420, SP18420-26

*When ordering replacement parts, be sure to order by part number, not by key number.

Key No.	Part No.	Description
1	PT707X1A	Plate Assembly
2	See Table A	Element
3	PT707X2	Plate
4	See Table B	Cord
5	MG771X1	Magnet
6	See Table C	Motor
7	CN757X1	Heat Control
8		
9	KBX83	Knob (2 req'd)
10	See Table E	Rheostat Assembly
11	See Table F	Heater Coil Assembly
	CEX42	Adapter Plug SP18424 100V (Not Shown)

Table A

EL707X1B Heating element, 120V, for Model SP18425

EL707X2B Heating element, 220-240V, for Model SP18420, SP18420-26

EL757X1A Heating element, 100V, for Model SP18424

Table B

CR163X1 Cord Set, 100V and 120V, for Models SP18424, SP18425

CR163X2 Cord Set, 220-240V, for Model SP18420

CR727X3 Cord Set, 220-240V, for Model SP18420-26

Table C

MT776X3A Motor, 100V for Model SP18424

MT776X1A Motor, 120V for Model SP18425

MT776X2A Motor, 220-240V, for Models SP18420-26, SP18420

Table D

PLX108 Pilot Light, 100V and 120V, for Models SP18424, SP18425

PLX109 Pilot Light, 220-240V, for Models SP18420, SP18420-26

Table E

RS757X3A Rheostat Assbly. (Speed Control), 100V Model SP18424

RS771X1A Rheostat Assbly. (Speed Control), 120V, Model SP18425

RS771X2A Rheostat Assbly. (Speed Control), 220-240V, for Models SP18420, SP18420-26

Table F

HT757X3A Heater Coil Assbly., 100V Model SP18424

HT757X1A Heater Coil Assbly., 120V, Model SP18425

HT757X2A Heater Coil Assbly., 220-240V, for Models SP18420, SP18420-26

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|Thermolyne 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 319-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead|Thermolyne Corp., please contact our Customer Service Department for a "Return Goods Authorization" number (RGA). Material Returned without an RGA number will be returned.

One Year Limited Warranty

Barnstead|Thermolyne Corporation warrants that if a product manufactured by **Barnstead|Thermolyne** and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by **Barnstead|Thermolyne** or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized **Barnstead|Thermolyne** dealer or **Barnstead|Thermolyne** (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by **Barnstead|Thermolyne**. The name of the authorized **Barnstead|Thermolyne** dealer nearest you may be obtained by calling 1-800-446-6060 (319-556-2241) or writing to:

Barnstead|Thermolyne
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516
E-MAIL ADDRESS: mkt@barnstead.com

Barnstead|Thermolyne's sole obligation with respect to its product shall be to repair or (at its own discretion) replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **Barnstead|Thermolyne** PRODUCTS. **Barnstead|Thermolyne** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

