



# Control Consoles

Models: CC58114A/CC58114C  
CC58114PA/CC58114PC  
CC58114BA/CC58114BC  
CC58114PBA/CC58114PBC

## Installation and Operation Manual



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## 1 Introduction

Lindberg/Blue M CC58114 series control consoles are complete temperature control systems containing a microprocessor-based digital temperature controller or programmer and featuring an Over Temperature Protection (OTP) system.

Each console is equipped with a solid state power module, power contactor (for OTP), panel mounted circuit breaker and polarized thermocouple jack(s).

“B” models also include Over Temperature Control (OTC) by an independent digital controller.

The consoles are designed to operate Lindberg/Blue M 1200°C laboratory box, tube and crucible furnaces.

## 2 Safety Considerations



**WARNING!** Do not modify or use equipment in a manner other than expressly intended. Modification of equipment other than that for which it is explicitly designed could cause severe injury or death. Any customer after-market retrofit violates the warranty of the equipment.

Do not reconfigure the controller(s). Any reconfiguration of the control instrument(s) could cause inaccurate readings, faulty instrument values, and may cause the furnace to become overheated and start on fire, causing personal injury or death, product and property damage.

Do not modify or disconnect any safety features provided. Disconnection of the unit safety features could allow the furnace to become overheated and start on fire, causing personal injury or death, product and property damage.

Do not use components or materials not specifically designed for this equipment. Failure to comply with this precaution could result in damage to equipment used or the unit and may create an overheat situation. Also, do not use anything other than OEM exact replacement equipment and parts. Not using OEM replacement parts could cause faulty instrumentation readings, inoperable equipment, or temperature overshoot. Both situations may cause personal injury or death, product, and property damage.

Before using, user shall determine the suitability and integrity of the product for the intended use and that the unit has not been altered in any way. Misapplication may compromise the safety of the end user or the life of the product.

## 3 Unpacking

Carefully unpack and inspect the unit and all accessories for damage. If you find any damage, keep the packing materials and immediately report the damage to the carrier. We will assist you with your claim, if requested. **Do not return goods to Lindberg/Blue M without written authorization.** When submitting a claim for shipping damage, request that the carrier inspect the shipping container and equipment.

## 4 Installation

Do not exceed the electrical and temperature ratings printed on the dataplate of the control console.



**WARNING!** Improper operation of the control console could result in dangerous conditions. To preclude hazard and minimize risk, follow all instructions and operate within design limits noted on the dataplate.

### 4.1 Location

Keep line voltage variations to a minimum for best control accuracy. Do not locate unit in areas of wide ambient temperature variation, such as near vents or outdoor entrances. Allow at least three inches space all round the console, although more space may be required for ease of maintenance.

### 4.2 Power Wiring

“A” voltage control consoles are designed to operate on 110V or 120V 50/60Hz, “C” voltage consoles on a 208V or 240V 50/60Hz single phase power source. The customer is to provide a main power disconnect switch or circuit breaker and correctly sized power and ground wires according to local electrical codes. The wiring should correspond with those carrying similar loads built into the console.



**CAUTION!** For personal safety and trouble-free operation, this unit must be properly grounded before it is used. Always conform to the National Electrical Code and local codes. Utilize proper grounding techniques to reduce RFI and EMI for electronic gear. Do not connect unit to already overloaded power lines; lower voltage to unit will decrease power to the heating elements.



**CAUTION!** Connect the console to the proper power source. Failure to use the specified voltage can result in damage to the unit

Information for sizing fuse, circuit breaker, or power lines appears on the control console dataplate. Fuse protection must never exceed 125% of console’s current rating.

Wire rated at 50°C minimum is suggested to be used for the connections between the console and the power supply.

### 4.3 Power Wiring Procedure



**WARNING!** Disconnect console from main power before attempting any maintenance

Remove both console side panels by undoing the appropriate screws. In the back panel, push out the two lower plastic hole plugs from inside the plastic bushing. If hard wiring is desired the bushings may be removed and the holes used to mount a standard 1/2" electrical conduit connector.

Insert the power and ground wires through one of the bushings. Connect the black wire to terminal L1, the white wire to terminal L2, and the green wire to the ground bar. The second bushing is used for the wiring to the furnace.

These control consoles can be used in conjunction with a large number of different furnaces. The internal connections must be made according to the wiring diagram relating to your particular furnace.

Check that all electrical connections are secure before replacing the console side panels.

### 4.4 Thermocouple Wiring Installation

Insert the thermocouple plug into the thermocouple jack on the console rear panel.

## 5 Initial Start-up

It is necessary to become familiar with the digital temperature controller(s) before attempting to operate the furnace for the first time. Examine the appropriate installation/operation instructions for the controller(s) that are included with the control console.

Refer to the separate furnace instruction manual for initial heat-up time and temperature recommendations.

## 6 Operation – 91e Controller

### 6.1 Setting the Temperature

Figure 1 shows the 91e control panel. Detailed instructions on operating the temperature controller are found in the *Model 91e Operation Manual*.

To set the temperature to the desired setpoint, complete the following steps:

1. Press any button on the controller keypad to illuminate the ▲, ▼, and ↻ keys.
2. Press ▲ or ▼ until the desired setpoint is indicated on the bottom line of the display.

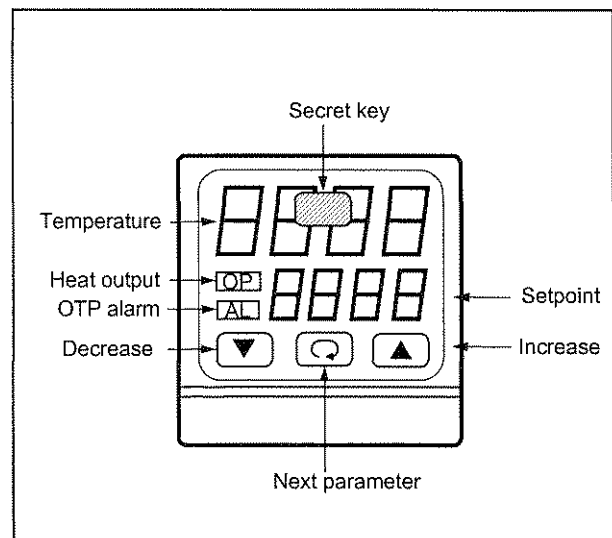


Figure 1. 91e Control Panel

## 7 2416 Controller ("P" Models Only)

The 2416 temperature controller is configured and tuned at the factory to function well for most applications. Occasionally, it may be advisable to configure the temperature controller differently to suit a particular working environment or process.



**CAUTION!** Before reconfiguring the controller, read this chapter and the *Model 2416 Installation and Operation Handbook*. Reconfiguring the controller can change the unit characteristics and design parameters, which can hamper performance and make the equipment dangerous to use.

### 7.1 Introduction

The 2416 controller includes an LED display and a pushbutton keypad (see Figure 2). You can use the Page, Scroll, Increase and Decrease buttons to check program status and to view and change pid settings and other parameters. When you are not using the pushbutton keypad, the upper display always shows process temperature and the lower display shows the current temperature setpoint value. This is the default, or Home, display.

You can operate the 2416 controller in either single setpoint or programming mode.

To run in single setpoint mode, verify that neither the RUN nor HOLD display is illuminated, then press ▲ or ▼ until the lower display shows the desired setpoint (see Section 7.2). The controller will then direct power output to the heating elements so that the setpoint is reached in the shortest possible time.

In 2416 programming mode, you can create, store and run a program that contains up to 16 segments. The main types of segments are *ramps* (periods of time during which setpoint temperature changes at a specified rate) and *dwells* (periods during which setpoint temperature remains constant). For programming techniques and examples, refer to Section 7.7.

The following sections provide brief instructions on how to:

- change the temperature setpoint
- change between Celsius and Fahrenheit
- start the Autotune function
- view current pid settings
- restore factory settings after Autotune
- create and run programs.

For complete instructions on configuring the temperature controller, refer to the *Model 2416 Installation and Operation Handbook*.

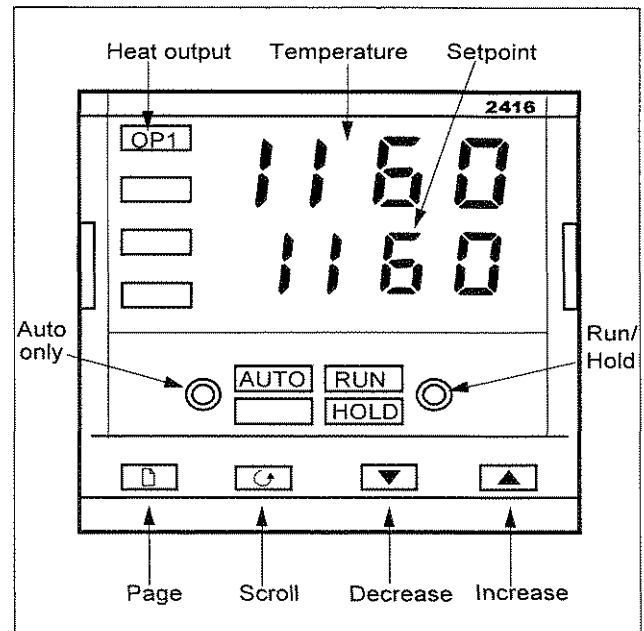


Figure 2. 2416 Control Panel

Table 2. 2416 Pushbutton Keypad Functions

Pushbutton	Description
	The page key advances the display to show units (°C, °F), programmer functions, alarm settings, tuning parameters (Atun), the Pid list, and access to the protected list (ACCS).
	The scroll key advances the display to show the next item within each page. While in the protected list the scroll key advances the display to the next parameter code and setting.
	The up arrow key is used to increase or change a setpoint or parameter setting.
	The down arrow key is used to decrease or change a setpoint or parameter setting.
Run/Hold	The button to the right of the RUN and HOLD displays is used to start and stop the stored program or to put the program on hold, allowing temporary changes.

## 7.2 Changing the Temperature Setpoint

During normal operation, the current temperature setpoint is displayed below the current process temperature.

To change the setpoint in single setpoint mode, verify that a program is not running (i.e., that the RUN and HOLD displays are not illuminated). Then press and hold ▲ or ▼ until the desired setpoint shows on the lower LED display. When the display shows the desired setpoint, release the button. After two seconds (during which the controller stores the new value) the display will blink, indicating that the new setpoint has been accepted.

If a program is running, then you can change it temporarily, revise the program, or stop it to operate in single setpoint mode (see Section 7.7.4).



**CAUTION!** Do not adjust the setpoint above 1200°C (2192°F).

## 7.3 Changing between Celsius (°C) and Fahrenheit (°F)

Changing the displayed units of measure requires paging to the protected list (ACCS), entering the appropriate access codes, and changing the setting of the unit parameter.



**CAUTION!** When changing units of measure, be sure that you follow the steps exactly and that you do not modify any other parameter settings. Changing parameter settings on the protected list (ACCS) can hamper performance and make the equipment dangerous to use.

To change from °C to °F or from °F to °C:

1. Press the page button ▢ and release until ACCS is displayed.
2. Press the scroll button ⤴ once to display codE.
3. Press ▲ to display the number 1. The control program will acknowledge this access code by displaying PASS.
4. Press ⤴ to display Goto, then press ▲ to display the value conF.
5. Press ⤴ to display Conf (note the capital "C").
6. Press ▲ to display the number 2. The control program will acknowledge this access code by displaying PASS.
7. Press ▢ to display PU Conf, then Press ⤴ to display unit.
8. Press and release ▲ to display the choices C and F. Once the choice you want is displayed, press the page button ▢ to display Exit.
9. Indicate you want to exit by pressing ▲ to display YES. The actual temperature display will return after two seconds.

To verify the units you chose, press and release ▢.

## 7.4 Auto Tune Operation

The factory set parameters are designed to optimize furnace performance under normal operating conditions. If you have unusual conditions or requirements — for example, high ambient temperatures or heavy shelf loading — you can use the Auto Tune function to change the furnace's performance characteristics.



**CAUTION!** Be sure that you analyze current performance carefully before deciding to do an Auto Tune operation.

If you are not satisfied with the results of an Auto Tune operation, you can restore the factory set parameter values by following the instructions in Section 7.6.

Before starting Auto Tune operation, be sure to have the furnace operating with typical load and ambient temperature conditions.

To start Auto Tune:

1. Press and release the page button ▢ repeatedly until you reach the Atun LiSt display.
2. Scroll (⤴) to display tunE.
3. Press ▲ to display on.
4. Press the ▢ and ⤴ buttons *together* and release. At this point the actual temperature value and tunE will display alternately to indicate that tuning is in progress.

You can interrupt and terminate the Auto Tune operation at any time by scrolling to tunE (steps 1 and 2 above) and pressing ▲ to display OFF.

After a sufficient number of cycles of temperature oscillation (usually two), the tuning process is completed, the tuner switches itself off, and the controller resumes normal operation with the new proportional values.

After Auto Tune operation, you can view the changed settings for proportional values by following the steps described below in Section 7.5.

## 7.5 Viewing PID Settings

To view the current proportional values:

1. Press and release the page button repeatedly until you reach the display Pid LiSt.
2. Press and release the scroll button to display each list item. The name of each item will appear in the upper display, its current value in the lower display.
3. The quickest way to return to the Home display is to press the page and scroll buttons simultaneously.
















## 7.6 Restoring Factory Set PID Values

The factory set proportional values are shown below in Table 3.

**Table 3. Default Factory Parameter Settings**

Parameter Code	Default Value	Description
Pb	20	Proportional band.
ti	120	Integral time.
td	30	Derivative time.
Hcb	10	High cutback.
Lcb	10	Low cutback.

If you have changed these settings by means of Auto Tune and have not experienced improved performance, you can restore the factory settings as follows:

1. The values shown in Table 3 are based on Celsius (°C) display mode. If your current display mode is Fahrenheit (°F) you should temporarily change it to °C following the instructions in Section 7.3.
2. Press the page button  and release to display ACCS.
3. Press the scroll button  once to display codE.
4. Press  to display the number 1. The control program will acknowledge this access code by displaying PASS.
5. Press  to display Goto, then press  to display the value FuLL.
6. Press the page button  and release to display Pid LiSt.
7. Press the scroll button  to display the name of the parameter you want to restore (the first one will be Pb).
8. Press  or  until the factory set value is displayed (refer to Table 3).
9. Repeat steps 7 and 8 for each of the remaining parameters ti, td, Hcb, and Lcb.
10. When you have restored all parameter values, press the page button  to display ACCS.
11. Press the scroll button  once to display codE.
12. Press  to display PASS.
13. Press  to display Goto.
14. Press  to display the value oPEr.
15. Press the page button  and release to return to the actual temperature display.





You can verify proportional values at any time by following the steps described in Section 7.5.

## 7.7 Programming the 2416 Controller

You can use the 2416 program parameters to program the controller for specific applications. For sample programs refer to Section 7.7.2 and Section 7.7.3 below.

### 7.7.1 Entering a Program

The controller stores one program at a time. A program can have up to 16 segments. To enter a program:

1. Page to run LiSt, scroll to StAt, and if necessary use the  key to set the value StAt OFF.
2. Page to ProG LiSt. Scrolling through this list enables you to enter, verify or change all the program parameters. For each parameter, the name appears in the upper display, the current value in the lower display. You can use the  and  keys to change a value or the scroll key  to display the next parameter.
3. The first four parameters displayed in the ProG LiSt apply to the entire program. Hb U denotes width of the holdback band, or maximum deviation from temperature profile (the default value is 20°C). rmP.U and dwL.U denote units of time used for ramps and dwells. CyC.n denotes the number of cycles (times you want the program to run). The value of CyC.n can be 1 to 999, or cont for continuous cycling.
4. The next parameter displayed will be SEG.n (the segment number) with the value 1. As you scroll through program parameters, segment numbers will appear in sequence automatically.
5. The next parameter will be tYPE, which specifies the type of segment, for example ramp or dwell. For a given segment, the parameters you need to specify depend on the segment type, as shown below in Table 4.
6. Once you have entered the complete program (through the End segment) you can run the program at any time following the instructions in Section 7.7.4.

**Table 4. Program Segment Types**

Segment Type	Function	Required Parameters
rmP.r	Ramp temperature rate (rAtE) sets temperature rise per unit of ramp time (rmP.U)	Hb, tGt, rAtE
rmP.t	Ramp rate time (dur) sets amount of time to rise to target setpoint (tGt)	Hb, tGt, dur
dwElI	Keeps the temperature constant for a set period of time (dur)	Hb, dur
StEP	Instantaneously changes the target setpoint (tGt) to a new value	tGt
End	Indicates end sequence. The End.t (end type) parameter can specify dwell, reset, or S OP to set output power.	End.t, Pwr if End.t=S OP



The following sections show some typical programming examples. For complete information on programming functions, refer to the *Model 2416 Installation and Operation Handbook*.

### 7.7.2 Example 1: Ramp and Hold

In the following simple program, segment 1 ramps to the temperature 1200°C at a rate of 20° per minute. Segment 2, the end segment, holds temperature at 1200°C indefinitely. The program is:

SEG.n	1	SEG.n	2
tYPe	rmPr	tYPe	End
Hb	bAnd	End.t	dwEll
tGt	1200		
rAtE	20		

### 7.7.3 Example 2: Three Ramps and Dwells

In the following program, there are three ramps and dwells. Segment 1 ramps slowly to 300°C at a rate of 5° per minute; segment 2 dwells at 300°C for 30 minutes. Segment 3 ramps to 900°C at a rate of 30° per minute; segment 4 dwells for 50 minutes. Segment 5 ramps to the furnace temperature 1100°C at a rate of 10° per minute; segment 6 dwells for 40 minutes. Segment 7 is a step segment specifying a setpoint of 30°C (close to ambient). The end segment, segment 8, halts the program and resets.

Note that the ramps and dwells (segments 1–6) have the Hb parameter (holdback) set to the value bAnd (deviation band holdback). Other possible values for Hb are OFF (disabled, as in segment 7), Lo (deviation low), and Hi (deviation high).

Each time this program runs it will produce the temperature profile shown in Figure 3.

The program is:

SEG.n	1	SEG.n	5
tYPe	rmPr	tYPe	rmPr
Hb	bAnd	Hb	bAnd
tGt	300	tGt	1100
rAtE	5	rAtE	10
SEG.n	2	SEG.n	6
tYPe	dwEll	tYPe	dwEll
Hb	bAnd	Hb	bAnd
dur	30	dur	40
SEG.n	3	SEG.n	7
tYPe	rmPr	tYPe	StEP
Hb	bAnd	Hb	OFF
tGt	900	tGt	30
rAtE	15		
SEG.n	4	SEG.n	8
tYPe	dwEll	tYPe	End
Hb	bAnd	END.t	rSEt
dur	50		

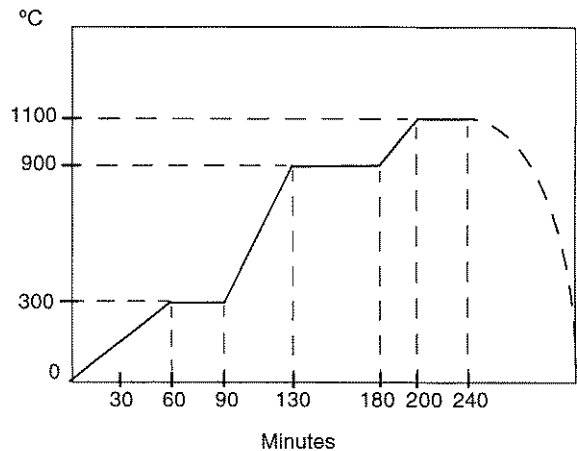


Figure 3. Three Ramps and Dwells

### 7.7.4 Run and Hold Functions

You can run a stored program by paging to run LiSt, scrolling to the StAt parameter, and using the ▲ button to set the value run.

The Run/Hold button (see Figure 2 on page 3) provides an easier way to control program operation. Pressing Run/Hold once illuminates the RUN display and starts the stored program. Pressing it a second time halts the program temporarily and illuminates the HOLD display. When the program is in hold you can make temporary changes. Pressing the button again cancels the hold and resumes operation of the program.

Pressing and holding the Run/Hold button for two seconds causes the program to stop, reset and erase any temporary changes made while in hold mode. This reset mode enables single setpoint operation.

### 7.7.5 Checking Program Status

To check on the status of the current program, page to run LiSt and scroll through the following parameters to review their values:

Table 5. Run List Parameters

Parameter Code	Meaning
StAt	Program status. run = program is running; OFF = program is not running; hoLd = program halted, can be modified temporarily; End = program is processing last segment. Caution! When you view StAt be careful not to change program status by pressing the up and down keys.
PSP	Current segment setpoint target temperature.
CYC	The number of cycles remaining in the program.
StYP	The active segment type.
SEG.t	Time remaining in the current segment
PrG.t	Time remaining in the current program.




## 8 Over Temperature System

### 8.1 Setting the Over Temperature Protection (OTP) Alarm Temperature

**Note:** *The high limit alarm in the temperature controller disables the heater output and automatically resets when the temperature drops below the alarm setpoint.*





#### 8.1.1 With the 91e Controller

To set the alarm on the 91e temperature controller (typically 15°C above the desired main temperature setpoint), complete the following steps:

1. Illuminate the keys by pressing the lower portion of the controller. Proceed directly to step 2 if the keys are already lit.
2. Press  until **AL.SP** shows on the top line of the display.
3. Press  or  until the desired alarm setpoint shows on the bottom line of the display.

#### 8.1.2 With the 2416 Controller (“P” Models Only)

The factory default setting for the overtemperature alarm is 1225°C. To change the alarm setpoint:

1. Press the page button  until **AL LiSt** appears on the display.
2. Press the scroll button  until **4FSH** appears on the display.
3. Press  or  until the desired setpoint is indicated on the bottom line of the display.








**CAUTION!** Do not adjust the alarm above 1250°C (2282°F).

### 8.2 Resetting the Over Temperature Control (OTC) Alarm Temperature – “B” Models Only

**Note:** *The independent over temperature controller, fitted to “B” models only, disables the heater output until manually reset.*

The alarm setpoint on the over temperature controller is factory set. For details on how to adjust the alarm setpoint consult the *Model 93 Operation Manual* supplied with the console.

To acknowledge an OTC alarm following an over temperature condition (indicated by the red **AL1** indicator flashing), complete the following steps:

1. Illuminate the keys by pressing the lower portion of the controller. Proceed directly to step 2 if the keys are already lit.
2. Press  until **AL 1** shows on the top line of the display.
3. Press and hold  or  for several seconds until **CLr** shows on the top line of the display.
4. Press  or  again. The red indicator will stop flashing and remain on. It will go out and the alarm will reset when the temperature drops below the alarm setpoint.

## 9 Maintenance



**CAUTION!** Maintenance should only be performed by trained personnel. Disconnect console from main power before attempting any maintenance to console or its controls.

### 9.1 Temperature Controller Replacement

The temperature controller(s) plug into a sleeve mounted in the control console front panel.



**CAUTION!** The controller contains static-sensitive electronic devices. Do not touch the controller internal components.

#### 9.1.1 Replacing the 91e or 93 Controller

To remove the controller from the sleeve, squeeze the top and bottom of the controller front face housing and gently pull it out of the sleeve.

To remove the mounting sleeve from the front panel, complete the following steps:

1. Remove the control console side panels.
2. Disconnect the wires from the back of the sleeve, label the wires for reinstallation.
3. Carefully pry the top and bottom of the square collar away from the sleeve and slide the collar off the back of the sleeve.
4. Slide the sleeve out of the front of the panel.

To reinstall the controller, reverse the above procedure.

#### 9.1.2 Replacing the 2416 Controller

To remove the controller from the sleeve, ease the latching ears outward and pull the control out of the sleeve.

To remove the mounting sleeve from the front panel, complete the following steps:

1. Remove the control console side panels.
2. Disconnect the wires from the back of the sleeve, label the wires for reinstallation.
3. Using your fingers or a screwdriver, unhook the two retaining clips from the slots in the sides of the sleeve.
4. Slide the sleeve out of the front of the panel.

To reinstall the controller, reverse the above procedure.

### 9.2 Solid State Relay (SSR) Replacement

To replace the SSR(s), complete the following steps:

1. Remove the control console side panels. The SSR(s) are mounted on the inside surface of the back panel.
2. Disconnect the wires from the SSR, label the wires for reinstallation.
3. Undo the two screws holding the SSR to the rear panel and remove the SSR.

**Note:** *Smear a thin layer of heat-sink paste under the new SSR before fitting.*

To install the new SSR, reverse the above procedure.

## 10 Troubleshooting



**WARNING!** Troubleshooting procedures involve working with high voltages which can cause injury or death. Troubleshooting should only be performed by trained personnel.

This section is a guide to troubleshooting controller problems. Refer to Table 6 for controller troubleshooting procedures.

**Table 6. Controller Troubleshooting**

Problem	Solution
91e Controller reads <b>SnSr</b> or 2416 reads: <b>S. br</b>	Thermocouple: <ol style="list-style-type: none"> <li>1. Check the thermocouple visually for breaks. If a break is evident, replace thermocouple.</li> <li>2. Check the thermocouple for continuity with an ohmmeter. If there is no continuity, replace thermocouple.</li> <li>3. Check all thermocouple connections. Connections should be clean and free of corrosion.</li> </ol>
91e Controller reads <b>tunE FAIL.</b>	Self-tuning operation failed because controller cannot maintain setpoint: <ol style="list-style-type: none"> <li>1. Touch any key to acknowledge the message.</li> <li>2. Remove the cause of failure, such as blown heater fuse, etc.</li> </ol>
91e Controller reads <b>LinE FAIL.</b>	Loss of controller power during self-tuning operation renders sampled data questionable: <ol style="list-style-type: none"> <li>1. Touch any key to acknowledge the message.</li> <li>2. Verify power supply.</li> <li>3. Reinitiate self-tuning procedure.</li> </ol>

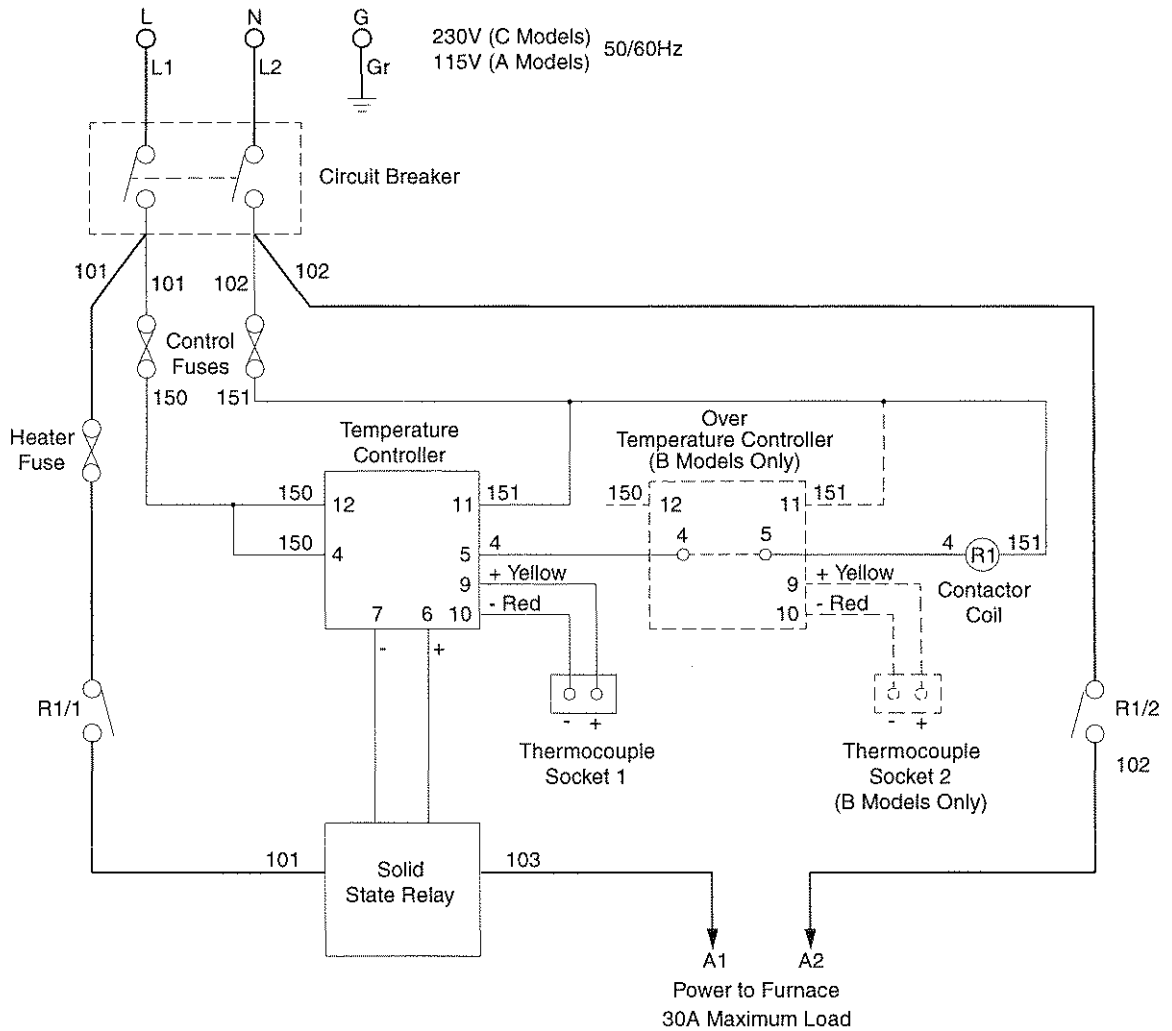
## 11 Replacement Parts

All quantities are one each unless otherwise stated.

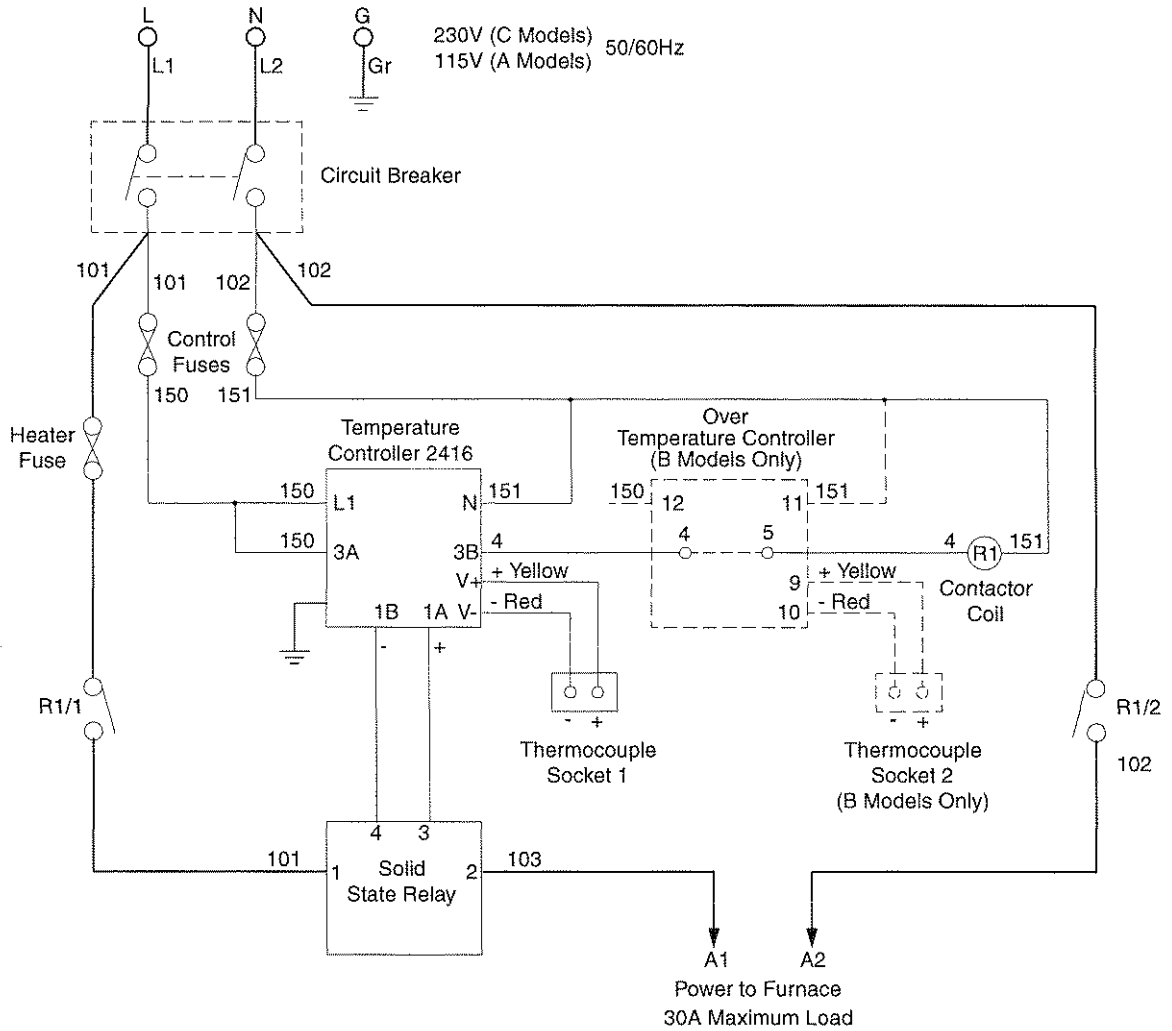
Part description	Part number "A" voltage consoles	Part number "C" voltage consoles
Solid state relay	7212-2210-00A	7212-2210-00A
Contactor	E02F-2-2	300088H01
91e Controller	118008	118008
2416 Controller ("P" Models Only)	302545H01	302545H01
Over Temperature Controller (OTC) ("B" models only)	16789	16789
Heater fuse	32657-004	32657-004
Control fuse (2)	104828	104828

### 12 Wiring Diagram

Model CC58114 Series Control Consoles (with 91e controller)



Model CC58114 Series Control Consoles (with 2416 Programmable Controller)



## 13 Warranty

### 13.1 Domestic Warranty (United States and Canada)

Lindberg/Blue M warrants this product to the owner for a period of twelve (12) months from date of shipment by Lindberg/Blue M. Under this warranty Lindberg/Blue M through its authorized Dealer or service organizations, will repair or at its option replace any part found to contain a manufacturing defect in material or workmanship, without charge to the owner, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. All components used in the manufacture of this product are covered by this warranty excluding heating elements and thermocouples.

This warranty is limited to products purchased and installed in the United States and Canada. It does not apply to damage caused from failure to properly install, operate, or maintain the product in accordance with the printed instructions provided. This warranty shall not apply to equipment or parts which have been subjected to negligence, accident, or damage by circumstances beyond Lindberg/Blue M's control or improper operation, application, maintenance, or storage.

To obtain prompt warranty service, contact the nearest Lindberg/Blue M authorized service center or Dealer. A listing of these companies will be provided upon request. Lindberg/Blue M's own shipping records showing date of shipment shall be conclusive in establishing the warranty period.

This warranty is in lieu of any other warranties, expressed or implied, including merchantability or fitness for a particular purpose. The owner agrees that Lindberg/Blue M's sole liability with respect to defective parts shall be as set forth in this warranty, and any claims for incidental or consequential damages are expressly excluded.

### 13.2 International Warranty (excluding Canada) 12 Months Parts Warranty

Lindberg/Blue M warrants this product to the original owner for a period of twelve (12) months from the date of shipment from the Lindberg/Blue M factory. Thermocouples and heating elements are excluded from this warranty. If any part is found to contain a manufacturing defect in material or workmanship Lindberg/Blue M will, at its option, repair or replace the part. Lindberg/Blue M assumes no responsibility for any labor expenses for service, removal, or reinstallation required to repair or replace the part, or for incidental repairs, and such costs are the responsibility of the Owner and his Dealer.

The warranty does not apply to damage caused by accidents, misuse, fire, flood, Acts of God or any other events beyond Lindberg/Blue M's control or to damage caused from failure to properly install, operate, or maintain the product in accordance with the printed instructions provided by Lindberg/Blue M. To obtain prompt warranty service, simply contact the Dealer from whom you purchased the product or the nearest Dealer handling Lindberg/Blue M products. Lindberg/Blue M's own shipping records showing date of shipment shall be conclusive in establishing the warranty period.

This warranty is in lieu of any other warranties, expressed or implied, including merchantability or fitness for a particular purpose. The owner agrees that its sole remedy and Lindberg/Blue M's sole liability with respect to defective parts or any other claim shall be as set forth in this warranty, and any claims for incidental, consequential or other damages are expressly excluded.

## Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (Lindberg/Blue M or specific agent/rep organization), and purchase order number.

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### IF YOU NEED ASSISTANCE:

#### LINDBERG/BLUE M SALES DIVISION

Phone: 828/658-2711  
800/252-7100

FAX: 828/645-3368

#### LABORATORY PARTS and SERVICE

Phone: 828/658-2891  
800/438-4851

FAX: 828/658-2576

#### TECHNICAL SUPPORT

Phone: 800/438-4851

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