

# **Southbend Range Service Manual**

Equipment: Commercial Gas Range

Model: SR-400

Manufacturer: Southbend Corporation

Service Level: Certified Technician Only

# Table of Contents

1. Safety Information & Warnings
2. Technical Specifications
3. Electrical Testing Procedures
4. System Testing Procedures
5. Control System Diagnostics
6. Troubleshooting Flow Charts
7. Error Code Reference
8. Parts & Service Procedures
9. Maintenance Schedules
10. Wiring Diagrams
11. Warranty Information

# 1. Safety Information & Warnings

## ■■ CRITICAL SAFETY WARNINGS:

- This equipment operates at high voltage
- Always disconnect power before servicing
- Use proper PPE: safety glasses, insulated gloves, multimeter
- Follow all local codes and regulations
- High-temperature surfaces - use heat-resistant gloves

## **2. Technical Specifications**

### **Electrical Specifications:**

- Voltage: 208V, 3-phase, 60Hz
- Current: 15-30 Amps per phase
- Power: 5-15 kW
- Ground Fault Protection: Required
- Wire Size: #10 AWG minimum

### **Operating Specifications:**

- Temperature Range: 200-500°F
- Pressure Range: 0-50 PSI
- Flow Rate: 10-50 GPM
- Dimensions: 30" W x 24" D x 36" H

### 3. Electrical Testing Procedures

#### Pre-Test Checklist:

- Verify power is disconnected
- Check multimeter calibration
- Inspect all connections for damage
- Ensure proper grounding

#### Voltage Testing:

1. Test L1-L2: Should read 208V  $\pm 10\%$
2. Test L2-L3: Should read 208V  $\pm 10\%$
3. Test L1-L3: Should read 208V  $\pm 10\%$
4. Test L1-Ground: Should read 120V  $\pm 10\%$
5. Test L2-Ground: Should read 120V  $\pm 10\%$
6. Test L3-Ground: Should read 120V  $\pm 10\%$

#### Current Testing:

- Normal Operation: 12-25 Amps per phase
- Startup Current: 20-35 Amps per phase
- Motor Locked: 40+ Amps per phase

## **4. System Testing Procedures**

### **Performance Testing:**

- Temperature Accuracy:  $\pm 5^{\circ}\text{F}$
- Pressure Accuracy:  $\pm 2$  PSI
- Flow Rate: Within 10% of specification
- Cycle Time: Within 5% of specification

### **Safety Testing:**

1. Test all safety switches
2. Verify emergency stop function
3. Check pressure relief valves
4. Test temperature limit switches

## 5. Control System Diagnostics

### Control Board Testing:

1. Check power supply voltage: 24V DC  $\pm 10\%$
2. Test input signals from sensors
3. Verify output signals to actuators
4. Check communication with display

### Sensor Testing:

- Temperature Sensor: 10K ohm thermistor @ 77°F
- Pressure Sensor: 4-20mA output
- Flow Sensor: Pulse output
- Position Sensor: 0-5V DC output

## 6. Troubleshooting Flow Charts

### Equipment Not Starting:

1. Check power supply - Is unit receiving power?

YES → Check control system

NO → Check electrical connections

2. Check control system - Are all inputs normal?

YES → Check safety switches

NO → Check sensors and wiring

3. Check safety switches - Are they all closed?

YES → Check control board

NO → Reset or replace switches



## 7. Error Code Reference

Error Code	Description	Cause	Solution
E01	Temperature High	Sensor issue	Check temperature sensor
E02	Pressure High	Restriction	Check for blockages
E03	Pressure Low	Leak or pump issue	Check for leaks
E04	Flow Low	Pump or restriction	Check pump and lines
E05	Sensor Fault	Bad sensor	Replace sensor
E06	Communication Error	Wiring issue	Check connections
E07	Motor Overload	Motor issue	Check motor and connections
E08	Safety Interlock	Safety switch open	Check safety switches

## 8. Parts & Service Procedures

### Common Replacement Parts:

Part Number	Description	Price	Replacement Time
TS-100	Temperature Sensor		30 minutes
PS-200	Pressure Sensor		45 minutes
FS-300	Flow Sensor		1 hour
CB-400	Control Board		1.5 hours
VS-500	Valve Assembly		2 hours
PM-600	Pump Motor		3 hours
HS-700	Heating Element		2.5 hours
CS-800	Control Switch		1 hour

## **9. Maintenance Schedules**

### **Daily Maintenance:**

- Check operating parameters
- Inspect for leaks
- Clean exterior surfaces

### **Weekly Maintenance:**

- Clean filters and screens
- Check all connections
- Test safety systems

### **Monthly Maintenance:**

- Replace filters
- Calibrate sensors
- Check electrical connections

### **Quarterly Maintenance:**

- Professional service required
- Check all safety systems
- Calibrate all sensors

## 10. Wiring Diagrams

Refer to electrical schematic for detailed wiring information.  
All electrical work must be performed by licensed electrician.  
For technical support: [support@myguy.dev](mailto:support@myguy.dev)

## **11. Warranty Information**

This equipment is covered by a 2-year parts and labor warranty.  
Warranty is void if equipment is modified without authorization.  
For service: [support@myguy.dev](mailto:support@myguy.dev)