HOBART

SERVICE

SERVICE MANUAL

This service manual includes information from Technical Service Bulletins 1247, 1258, 1303, 1315, & 1317. These documents are obsolete and should be destroyed.

20002

HBA2G MODEL SHOWN

RACK OVEN - GAS

HBA1G	**ML- 132358**
BXA1G	**ML- 132359**
HBA2G	**ML- 132280**
BXA2G	**ML- 132281**
BXA2GP	**ML- 132282**

- NOTICE -

This Manual is prepared for the use of trained Hobart Service Technicians and should not be used by those not properly qualified. If you have attended a Hobart Service School for this product, you may be qualified to perform all the procedures described in this manual.

This manual is not intended to be all encompassing. If you have not attended a Hobart Service School for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained Hobart Service Technician.

TABLE OF CONTENTS

GENERAL

INTRODUCTION

General

HBA1G, BXA1G ovens hold one single rack and HBA2G, BXA2G & BXA2GP ovens hold two single racks or one double rack.

Oven features:

- Powered rack lift with high temperature bearings and a clutch rotating system designed to stop the rack in the event of a jam without damage to the rotation motor or losing rack alignment.
- Digital programmable controller with optional backup control, flush flooring, and field reversible bake chamber door.

All of the information, illustrations and specifications contained in this manual are based on the latest product information available at the time of printing.

Heating

The rack oven reaches baking temperatures of 350°F in approximately 20 minutes; however, a 30 minute preheat is recommended to fully heat the steam generator.

Steaming System

Standard on all rack ovens, is a self-contained spherical cast steam system providing excellent steaming conditions.

LOCATION

Refer to the Installation Instructions for specific location requirements.

OPERATION

Refer to the Operation Manual for specific operating instructions.

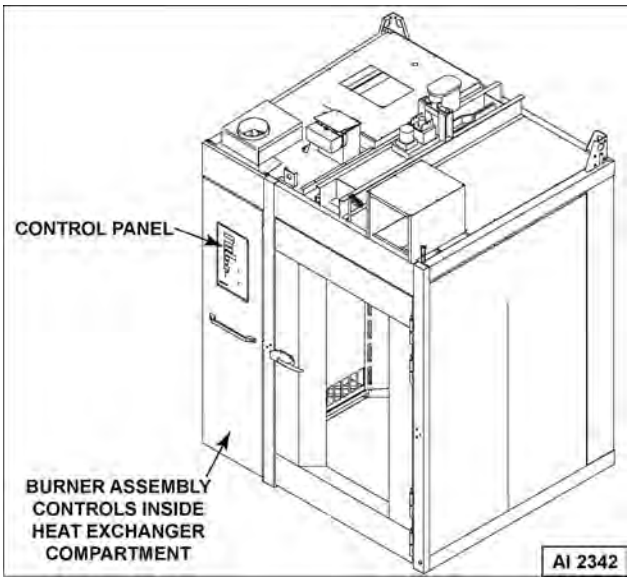
CLEANING

Refer to the Operation Manual for specific cleaning instructions.

LUBRICATION

- Circulation motor upper and lower bearings, rotator chain, and lift motor spherical bearing lubricate with high temperature grease every 6 months.
- Lift actuator.
- Oven has high temperature self-lubricating composite bearings on power rack lift shaft - no lubrication required.

CONTROL LOCATION



TOOLS

- Standard set of hand tools
- Oven pressure panel feeler gauge Part No. 01-1M5689-1 Do not discard feeler gauge
- Multi-Meter that measures 200 micro amps Grainger No. 6MR09
- Clamp meter No. TL541069 Grainger No. 1ND81
- Temperature tester (thermocouple type) with 10' probe
- Manometer U tube Part No. TL-84908 or equivalent
- Grounding kit Part No. TL-84919
- Jeweler's screw driver set - Sears No. 00930448000 or equivalent
- Combustion analyzer w/ printer BACHARACH "Insight" Model 24-8251 or equivalent (Order from Bakery Support)
- BACHARACH gas leak detector (Order from Bakery Support)
- Draft meter BACHARACH Model 13-3000 DCL 24490 or Dwyer Part No. 460

HBA1 & BXA1 GAS RACK OVEN SPECIFICATIONS
SINGLE POINT VENTING

① WATER:

1/2" NPT, 30-75 PSI required, 14 PSI max @ regulator during flow, cold water required, customer to install in-line filter, shut off valve and line strainer.

② DRAIN:

6 1/4" (front) or 7" (rear) connection A.F.F. (See notes). Route to air-gap drain. Do not slope drain upwards. Plug the drain connection that is not in use.
Rear Drain: 1/2" NPTF
Front Drain: 1/2" NPTF

③ GAS:

Natural Gas (N.G.)
3/4" NPT, W.C.N.G. (N.G. rated 1025 BTU/CU. FT. SP. GR. 1.00)
Liquified Propane Gas (L.P.G.)
3/4" NPT, W.C.L.P.G. (L.P.G. rated 2440 BTU/CU.FT., SP. GR. 1.52)

NOTE: Line pressure must be measured as flow pressure.

	NATURAL GAS	LIQUIFIED PROPANE GAS
BTU/HR	180,000	180,000
W.C.	5.0" - 10.0"	12.0" - 14.0"

④ ELECTRICAL:

Two supplies required.
120/60/1 20 AMP dedicated circuit required.

VOLTAGE	FULL LOAD AMPS
208-240/60/1	6.8 AMPS
208-240/60/3	4.2 - 4.4 AMPS
460/60/3	2.1 AMPS

⑤ HOOD VENT:

8" DIA connection collar. Customer to supply duct and ventilator fan per state and local codes. Air proving switch factory installed & integrated with burner system operation. Oven provided rely with max. 6 amp 1/3 H.P. @ 120V output for fan operation. If larger, use oven relay to control additional separately powered contactor / relay for hood fan. Chamber vents are factory ducted to this integral hood. 600 CFM required, 0.4" W.C. static pressure drop through standard Type 2 hood (steam & heat). 690 CFM required, 0.6" W.C. static pressure drop through optional Type 1 hood (grease filters). Hood is UL710 Listed when grease filters are installed. Type B gas vent can be used except when bake products are grease laden.

NOTES:

1. A.F.F.: Above finished floor.
2. Customer responsible to finish and install all utilities to and from oven.
3. All services must comply with all Federal, State and Local codes.
4. **NOTICE** To reduce the risk of fire, the appliance is to be installed on non-combustible surface only, with no combustible material within 18 inches above the appliance. The appliance is to be mounted on floors of non-combustible construction with non-combustible flooring and surface finish and with no combustible material against the underside, or on non-combustible slabs or arches having no combustible material against the underside. Such construction shall in all cases extend not less than 12 inches beyond the equipment on all sides.
5. The floor must be of non-combustible material, and must be level with surrounding area with a maximum slope of 1/8" per foot up to 3/4" maximum in all directions. Floor anchors require a minimum 1" thick solid floor substrate.
6. Oven is UL/C-UL classified and CSA (AGA/CGA) approved for 0" clearance on the side and rear walls. Unit requires 1" to 4" clearance for rear drain connection.
7. Top of oven requires a minimum of 24" for service accessibility.
8. Customer responsible to install flue piping. Flue must be vented outside of building.
9. Manufacturer reserves the right to make changes in sizes and specifications.

Export Ratings

① WATER:

1/2" NPT, 2.1-5.2 Bar cold water required, customer to install in-line filter, shut off valve and line strainer. Flow rate of 8 l/min..

③ GAS:

Natural Gas (N.G.)
3/4" NPT (N.G. Rated 38.2Mj/m^3 or 9120 Kcal/m^3 SP Gr 1.00)
Liquefied Propane Gas (LPG)
3/4" NPT (LPG Rated 90.9Mj/m^3 or 21710 Kcal/m^3 SP Gr 1.52)

	NATURAL GAS	LIQUIFIED PROPANE GAS
kCAL/HR	45,400	45,400
cm W.C.	12.7 - 25.4	30.5 - 35.6
Mj/HR	190	190
kPa	1.25 - 2.50	3.00 - 3.50

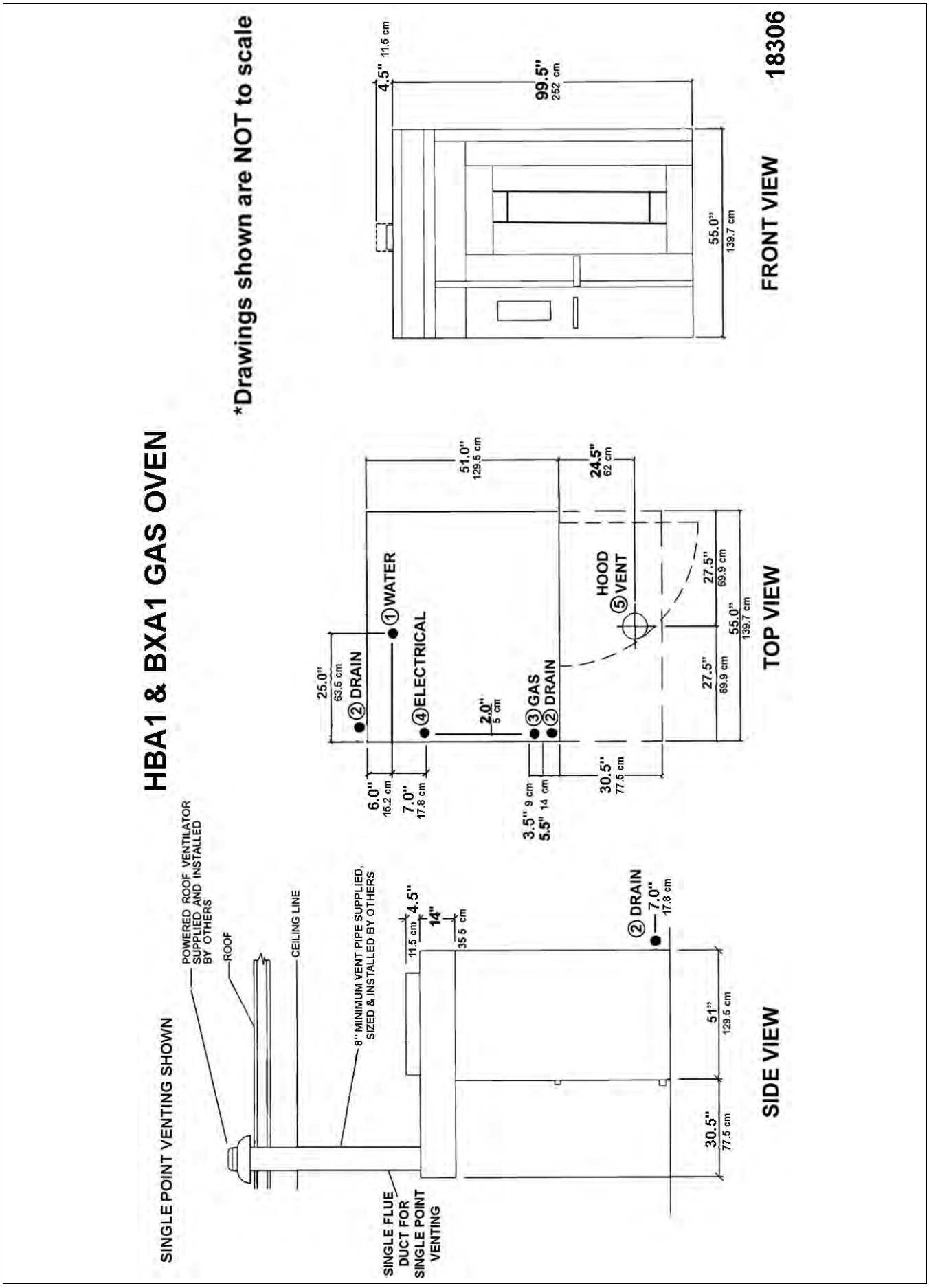
NOTE: Pressure not to exceed 35.6 cm W.C. or 3.5 kPa

④ ELECTRICAL:

Single supply connection provided- 380V/3ph/50Hz, 400V/3ph/50Hz, or 415V/3ph/50Hz – 6 A circuit required
1 kVa Transformer supplied for control and operation voltage of 110V. This is a multifunction transformer, so output voltage should be verified before operation.
Oven fan (1.1kW) operates @ 380-415V 3ph 50 Hz 2.4- 2.2A

⑤ HOOD VENT:

20.3 cm DIA. Connection collar. Customer is to supply duct and ventilator fan per federal and/or local codes. Chamber vent (steam) and combustion exhaust are discharged into the hood. An air proving switch is factory installed and integrated with burner system operation. If proper ventilation is not provided, burner will not operate. Oven provides a relay to activate a customer supplied and powered contactor/relay, so that when oven is powered up external fan will operate. The hood requires a minimum of 19.5 m^3/min for safe operation. For fan calculation purposes you should assume 0.15 kPa resistance through the hood. Grease filters (optional) may be installed in the hood instead of standard baffle.


HBA1 & BXA1 GAS OVEN
*Drawings shown are NOT to scale
18306
FRONT VIEW
99.5" 252 cm
4.5" 11.5 cm
55.0" 139.7 cm
TOP VIEW
51.0" 129.5 cm
24.5" 62 cm
25.0" 63.5 cm
② DRAIN
① WATER
④ ELECTRICAL
2.0" 5 cm
③ GAS
② DRAIN
HOOD
⑤ VENT
27.5" 69.9 cm
55.0" 139.7 cm
6.0" 15.2 cm
7.0" 17.8 cm
3.5" 9 cm
5.5" 14 cm
30.5" 77.5 cm
SIDE VIEW
SINGLE POINT VENTING SHOWN
POWERED ROOF VENTILATOR SUPPLIED AND INSTALLED BY OTHERS
ROOF
CEILING LINE
8" MINIMUM VENT PIPE SUPPLIED, SIZED & INSTALLED BY OTHERS
4.5" 11.5 cm
14" 35.5 cm
② DRAIN
7.0" 17.8 cm
51" 129.5 cm
30.5" 77.5 cm
SINGLE FLUE DUCT FOR SINGLE POINT VENTING

HBA1 & BXA1 GAS RACK OVEN SPECIFICATIONS DUAL POINT VENTING

① WATER:

1/2" NPT, 30-75 PSI required, 14 PSI max @ regulator during flow, cold water required, customer to install in-line filter, shut off valve and line strainer.

② DRAIN:

6 1/4" (front) or 7" (rear) connection A.F.F. (See notes). Route to air-gap drain. Do not slope drain upwards. Plug the drain connection that is not in use.

Rear Drain: 1/2" NPTF

Front Drain: 1/2" NPTF

③ GAS:

Natural Gas (N.G.)

3/4" NPT, W.C.N.G. (N.G. rated 1025 BTU/CU. FT. SP. GR. 1.00)

Liquified Propane Gas (L.P.G.)

3/4" NPT, W.C.L.P.G. (L.P.G. rated 2440 BTU/CU.FT., SP. GR. 1.52)

NOTE: Line pressure must be measured as flow pressure.

	NATURAL GAS	LIQUIFIED PROPANE GAS
BTU/HR	180,000	180,000
W.C.	5.0" - 10.0"	12.0" - 14.0"

④ ELECTRICAL:

Two supplies required.

120/60/1 20 AMP dedicated circuit required.

VOLTAGE	FULL LOAD AMPS
208-240/60/1	6.8 AMPS
208-240/60/3	4.2 - 4.4 AMPS
460/60/3	2.1 AMPS

⑤ HOOD VENT:

8" DIA connection collar. Customer to supply duct and ventilator fan per state and local codes. Air proving switch factory installed & integrated with burner system operation. Oven provided rely with max. 6 amp 1/3 H.P. @ 120V output for fan operation. If larger, use oven relay to control additional separately powered contactor / relay for hood fan. Chamber vents are factory ducted to this integral hood. 600 CFM required, 0.4" W.C. static pressure drop through standard Type 2 hood (steam & heat). 690 CFM required, 0.6" W.C. static pressure drop through optional Type 1 hood (grease filters). Hood is UL710 Listed when grease filters are installed. Type B gas vent can be used except when bake products are grease laden.

⑥EXHAUST VENT:

8" DIA draft diverter and power venter provided for exhaust duct. Airflow proving switch is factory installed and integrated with burner system. Airflow proving switch is to be connected between the draft diverter and power venter. Oven provided relay with max. 6.0 Amp 1/3 H.P. @ 120V output for power venter operation. Type B vent minimum.

NOTES:

1. A.F.F.: Above finished floor.
2. Customer responsible to finish and install all utilities to and from oven.
3. All services must comply with all Federal, State and Local codes.
4. **NOTICE** To reduce the risk of fire, the appliance is to be installed on non-combustible surface only, with no combustible material within 18 inches above the appliance. The appliance is to be mounted on floors of non-combustible construction with non-combustible flooring and surface finish and with no combustible material against the underside, or on non-combustible slabs or arches having no combustible material against the underside. Such construction shall in all cases extend not less than 12 inches beyond the equipment on all sides.
5. The floor must be of non-combustible material, and must be level with surrounding area with a maximum slope of 1/8" per foot up to 3/4" maximum in all directions. Floor anchors require a minimum 1" thick solid floor substrate.
6. Oven is UL/C-UL classified and CSA (AGA/CGA) approved for 0" clearance on the side and rear walls. Unit requires 1" to 4" clearance for rear drain connection.
7. Top of oven requires a minimum of 24" for service accessibility.
8. Customer responsible to install flue piping. Flue must be vented outside of building.
9. Manufacturer reserves the right to make changes in sizes and specifications.

Export Ratings

① WATER:

1/2" NPT, 2.1-5.2 Bar cold water required, customer to install in-line filter, shut off valve and line strainer. Flow rate of 8 l/min..

③ GAS:

Natural Gas (N.G.)

3/4" NPT (N.G. Rated 38.2Mj/m^3 or 9120 Kcal/m^3 SP Gr 1.00)

Liquefied Propane Gas (LPG)

3/4" NPT (LPG Rated 90.9Mj/m^3 or 21710 Kcal/m^3 SP Gr 1.52)

	NATURAL GAS	LIQUIFIED PROPANE GAS
kCAL/HR	45,400	45,400
cm W.C.	12.7 - 25.4	30.5 - 35.6
Mj/HR	190	190
kPa	1.25 - 2.50	3.00 - 3.50

NOTE: Pressure not to exceed 35.6 cm W.C. or 3.5 kPa

④ ELECTRICAL:

Single supply connection provided- 380V/3ph/50Hz, 400V/3ph/50Hz, or 415V/3ph/50Hz – 6 A circuit required

1 kVa Transformer supplied for control and operation voltage of 110V. This is a multifunction transformer, so output voltage should be verified before operation.

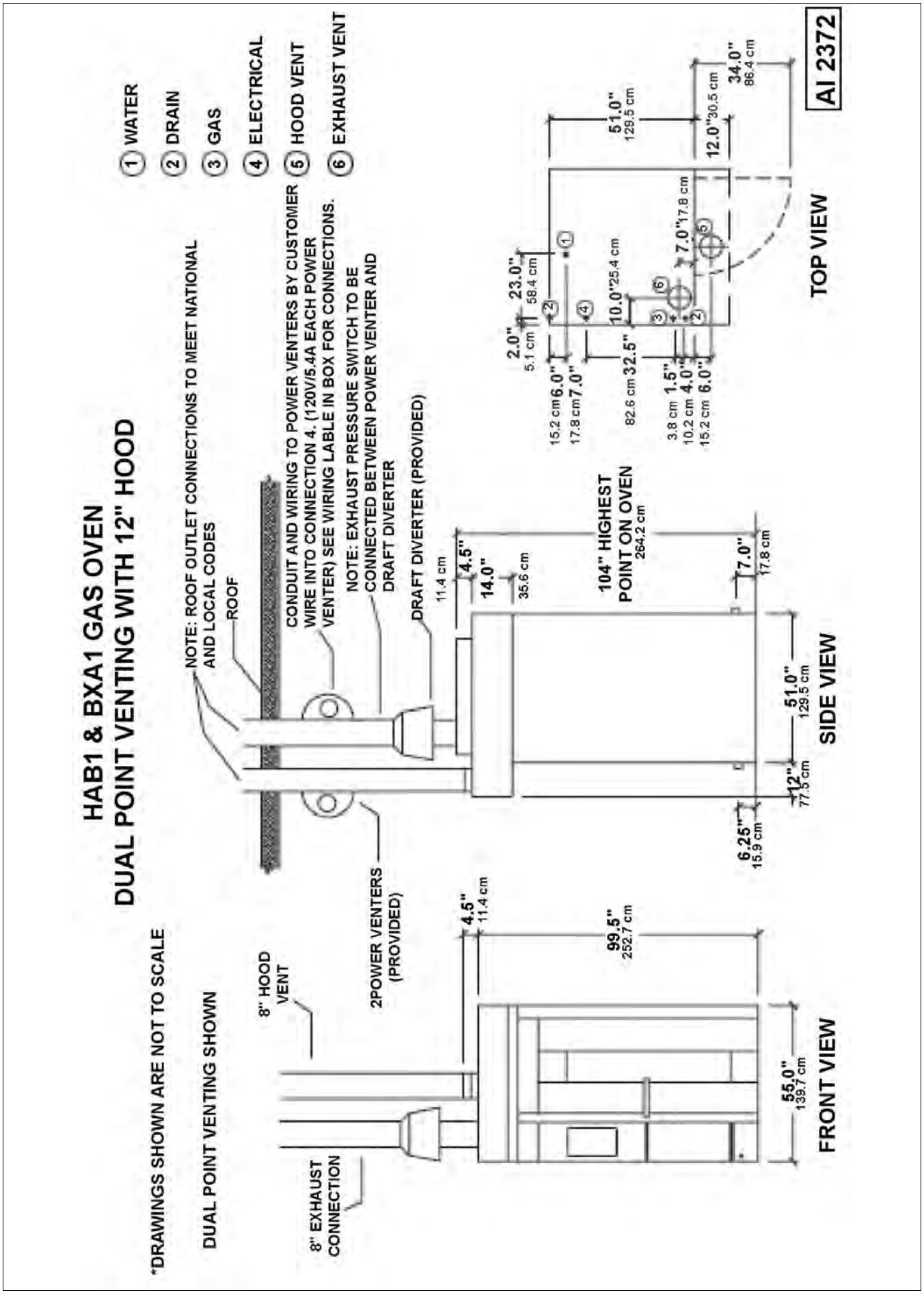
Oven fan (1.1kW) operates @ 380-415V 3ph 50 Hz 2.4-2.2A

⑤ HOOD VENT:

20.3 cm DIA. Connection collar. Customer is to supply duct and ventilator fan per federal and/or local codes. Chamber vent (steam) and combustion exhaust are discharged into the hood. An air proving switch is factory installed and integrated with burner system operation. If proper ventilation is not provided, burner will not operate. Oven provides a relay to activate a customer supplied and powered contactor/relay, so that when oven is powered up external fan will operate. The hood requires a minimum of 19.5 m^3/min for safe operation. For fan calculation purposes you should assume 0.15 kPa resistance through the hood. Grease filters (optional) may be installed in the hood instead of standard baffle.

⑥**EXHAUST VENT:**

20.3 cm DIA draft diverter and power venter provided for exhaust duct. Airflow proving switch is factory installed and integrated with burner system. Airflow proving switch is to be connected between the draft diverter and power venter. Oven provided relay with max. 6.0 Amp 1/3 H.P. @ 120V output for power venter operation. Type B vent minimum.


HAB1 & BXA1 GAS OVEN
DUAL POINT VENTING WITH 12" HOOD
AI 2372
*DRAWINGS SHOWN ARE NOT TO SCALE
DUAL POINT VENTING SHOWN
1 WATER
2 DRAIN
3 GAS
4 ELECTRICAL
5 HOOD VENT
6 EXHAUST VENT
NOTE: ROOF OUTLET CONNECTIONS TO MEET NATIONAL AND LOCAL CODES
ROOF
CONDUIT AND WIRING TO POWER VENTERS BY CUSTOMER
WIRE INTO CONNECTION 4. (120V/5.4A EACH POWER VENTER) SEE WIRING LABLE IN BOX FOR CONNECTIONS.
NOTE: EXHAUST PRESSURE SWITCH TO BE CONNECTED BETWEEN POWER VENTER AND DRAFT DIVERTER
DRAFT DIVERTER (PROVIDED)
11.4 cm
4.5"
14.0"
35.6 cm
104" HIGHEST POINT ON OVEN
264.2 cm
7.0"
17.8 cm
51.0"
129.5 cm
12"
77.5 cm
6.25"
15.9 cm
2POWER VENTERS (PROVIDED)
8" HOOD VENT
8" EXHAUST CONNECTION
99.5"
252.7 cm
55.0"
139.7 cm
2.0"
5.1 cm
23.0"
58.4 cm
6.0"
15.2 cm
7.0"
17.8 cm
10.0"
25.4 cm
32.5"
82.6 cm
1.5"
3.8 cm
4.0"
10.2 cm
6.0"
15.2 cm
7.0"
17.8 cm
12.0"
30.5 cm
34.0"
86.4 cm
TOP VIEW
SIDE VIEW
FRONT VIEW

HBA2 & BXA2 GAS RACK OVEN SPECIFICATIONS

SINGLE POINT VENTING

① WATER:

1/2" NPT, 30-75 PSI cold water required, customer to install in-line filter, shut off valve and line strainer.

② DRAIN:

2 3/4" (front) or 5 1/2" (rear) connection A.F.F. (See notes). Route to air-gap drain. Do not slope drain upwards. Plug the drain connection that is not in use. Kit provided to extend drain to either side of oven.

Rear Drain: 3/4" NPTF

Front Drain: 3/8" NPTF

③ GAS:

Natural Gas (N.G.)

1 1/4" NPT, W.C.N.G. (N.G. rated 1025 BTU/CU. FT. SP. GR. 1.00)

Liquified Propane Gas (L.P.G.)

1 1/4" NPT, W.C.L.P.G. (L.P.G. rated 2440 BTU/CU.FT., SP. GR. 1.52)

	NATURAL GAS		LIQUIFIED PROPANE GAS	
BTU/HR	300,000	350,000	300,000	350,000
W.C.	5.0 -14.0"	6.0 - 14.0"	10.0" - 14.0"	12.0 - 14.0"

④ ELECTRICAL:

Two supplies required.

120/60/1 20 AMP dedicated circuit required and one of the following voltage options.

VOLTAGE	FULL LOAD AMPS
220/60/1	6.8 AMPS
208-230/60/3	4.4 - 4.2 AMPS
460/60/3	2.1 AMPS

⑤ HOOD VENT:

10" DIA connection collar and optional 10" to 8" DIA duct adapter provided. Air proving switch factory installed & integrated with burner system operation. Oven provided rely with max. 6 amp 1/3 H.P. @ 120V output for fan operation. If larger, use oven relay to control additional separately powered contactor / relay for hood fan. Customer to supply duct and ventilator fan per state and local codes. Chamber vents are factory ducted to this integral hood. 750 CFM required, 0.4" W.C. static pressure drop through standard Type 2 hood (steam & heat). 900 CFM required, 0.6" W.C. static pressure drop through grease Type 1 hood (grease filters). Hood is UL710 Listed when grease filters are installed. Type B gas vent can be used except when bake products are grease laden.

NOTES:

1. A.F.F.: Above finished floor.
2. Customer responsible to finish and install all utilities to and from oven.
3. All services must comply with all Federal, State and Local codes.
4. **NOTICE** To reduce the risk of fire, the appliance is to be installed on non-combustible surface only, with no combustible material within 18 inches above the appliance. The appliance is to be mounted on floors of non-combustible construction with non-combustible flooring and surface finish and with no combustible material against the underside, or on non-combustible slabs or arches having no combustible material against the underside. Such construction shall in all cases extend not less than 12 inches beyond the equipment on all sides.
5. The floor must be of non-combustible material, and must be level with surrounding area with a maximum slope of 1/8" per foot up to 3/4" maximum in all directions. Floor anchors require a minimum 1" thick solid floor substrate.
6. Oven is UL/C-UL classified and CSA (AGA/CGA) approved for 0" clearance on the side and rear walls. Unit requires 1" to 4" clearance for rear drain connection.
7. Top of oven requires a minimum of 24" for service accessibility.
8. Customer responsible to install flue piping. Flue must be vented outside of building.
9. Manufacturer reserves the right to make changes in sizes and specifications.

Export Ratings

① WATER:

1/2" NPT, 2.1-5.2 Bar cold water required, customer to install in-line filter, shut off valve and line strainer. Flow rate of 8 l/min..

③ GAS:

Natural Gas (N.G.)

3/4" NPT (N.G. Rated 38.2Mj/m^3 or 9120 Kcal/m^3 SP Gr 1.00)

Liquefied Propane Gas (LPG)

3/4" NPT (LPG Rated 90.9Mj/m^3 or 21710 Kcal/m^3 SP Gr 1.52)

	NATURAL GAS	LIQUIFIED PROPANE GAS
kCAL/HR	75,600	75,600
cm W.C.	12.7 - 25.4	30.5 - 35.6
Mj/HR	317	317
kPa	1.25 - 3.50	3.00 - 3.50

NOTE: Pressure not to exceed 35.6 cm W.C. or 3.5 kPa

④ ELECTRICAL:

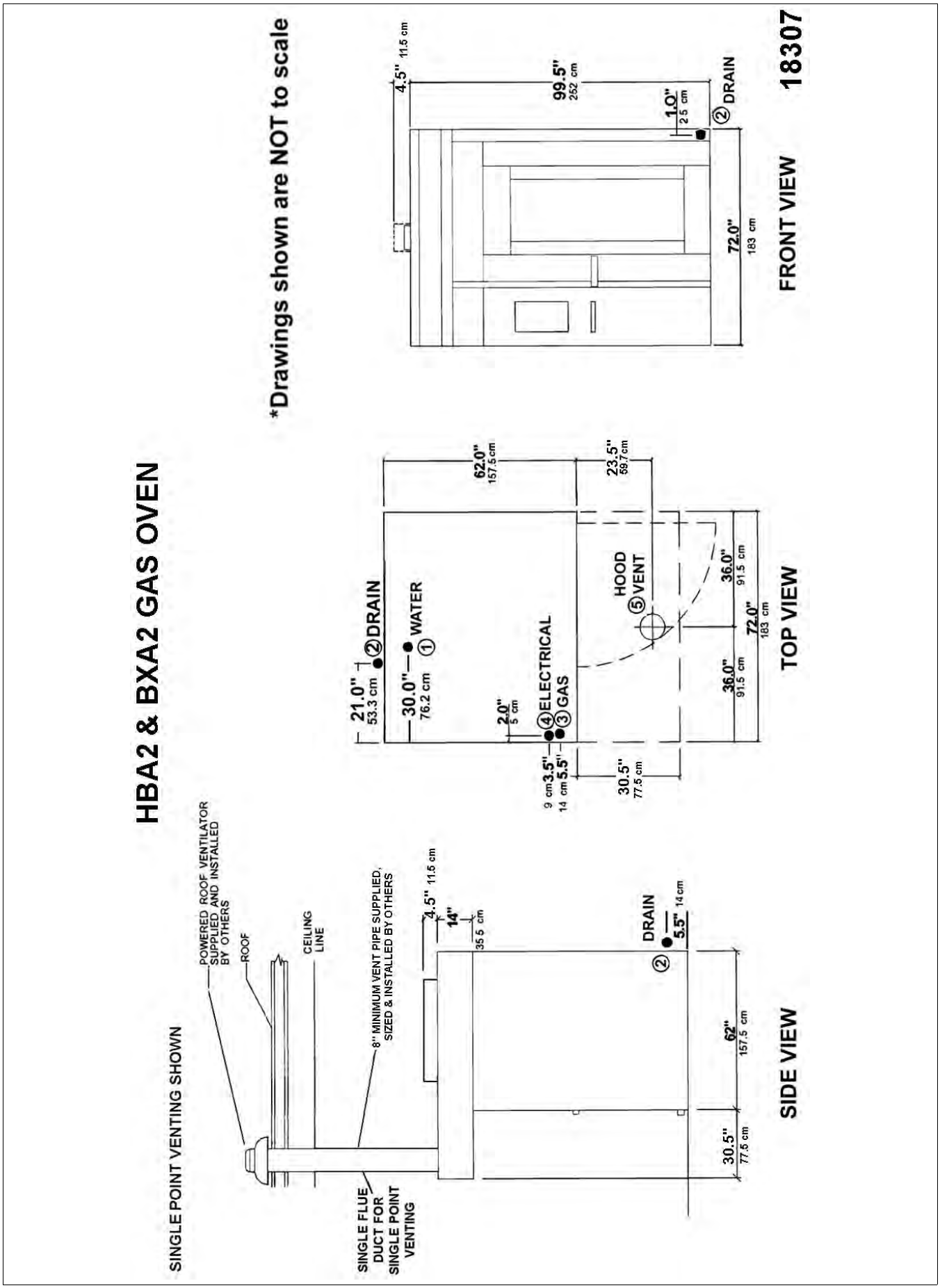
Single supply connection provided- 380V/3ph/50Hz, 400V/3ph/50Hz, or 415V/3ph/50Hz – 6 A circuit required

1 kVa Transformer supplied for control and operation voltage of 110V. This is a multifunction transformer, so output voltage should be verified before operation.

Oven fan (1.1kW) operates @ 380-415V 3ph 50 Hz 2.4-2.2A

⑤ HOOD VENT:

25.4 cm DIA. Connection collar. Customer is to supply duct and ventilator fan per federal and/or local codes. Chamber vent (steam) and combustion exhaust are discharged into the hood. An air proving switch is factory installed and integrated with burner system operation. If proper ventilation is not provided, burner will not operate. Oven provides a relay to activate a customer supplied and powered contactor/relay, so that when oven is powered up external fan will operate. The hood requires a minimum of 25.5 m^3/min for safe operation. For fan calculation purposes you should assume 0.15 kPa resistance through the hood. Grease filters (optional) may be installed in the hood instead of standard baffle.


HBA2 & BXA2 GAS OVEN
*Drawings shown are NOT to scale
18307
FRONT VIEW
99.5" 252 cm
4.5" 11.5 cm
1.0" 2.5 cm
DRAIN
72.0" 183 cm
TOP VIEW
62.0" 157.5 cm
23.5" 59.7 cm
21.0" 53.3 cm
30.0" 76.2 cm
DRAIN
WATER
ELECTRICAL
GAS
HOOD VENT
2.0" 5 cm
3.5" 9 cm
5.5" 14 cm
30.5" 77.5 cm
36.0" 91.5 cm
72.0" 183 cm
SIDE VIEW
SINGLE POINT VENTING SHOWN
POWERED ROOF VENTILATOR SUPPLIED AND INSTALLED BY OTHERS
ROOF
CEILING LINE
8" MINIMUM VENT PIPE SUPPLIED, SIZED & INSTALLED BY OTHERS
SINGLE FLUE DUCT FOR SINGLE POINT VENTING
4.5" 11.5 cm
14" 35.5 cm
DRAIN
5.5" 14 cm
62" 157.5 cm
30.5" 77.5 cm

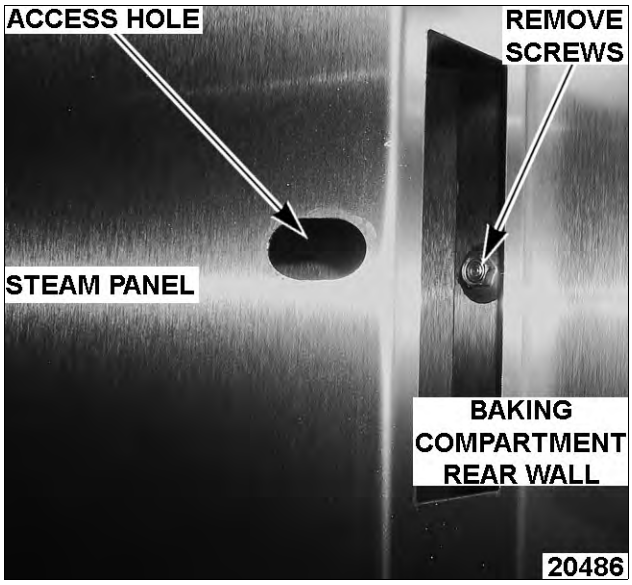
REMOVAL AND REPLACEMENT OF PARTS

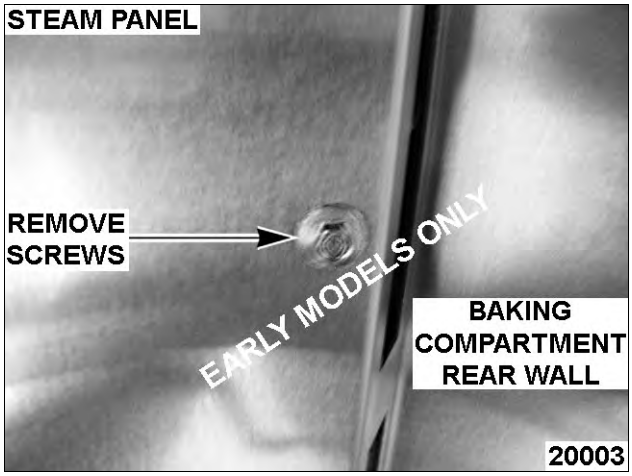
STEAM PANEL

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

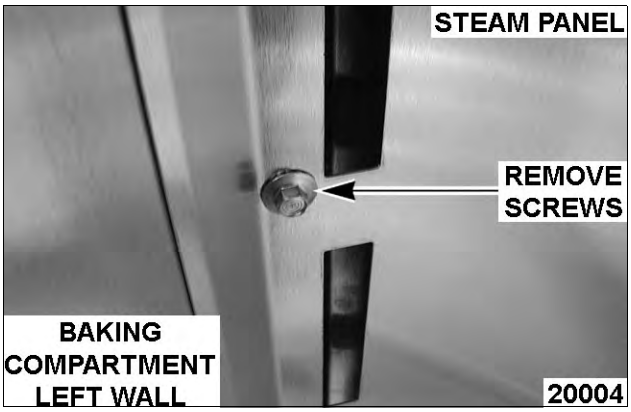
NOTE: Hand tighten only, do not use power tools when installing panel screws.

1. Remove screws securing steam panel to baking compartment rear wall (through access holes).

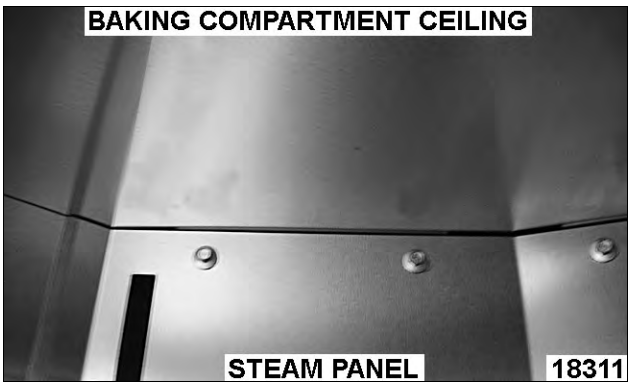




2. Remove screws securing steam panel to left baking compartment wall.



3. Remove screws securing steam panel to baking compartment ceiling (left rear corner). Reverse the procedure to install.



4. Reverse the procedure to install.

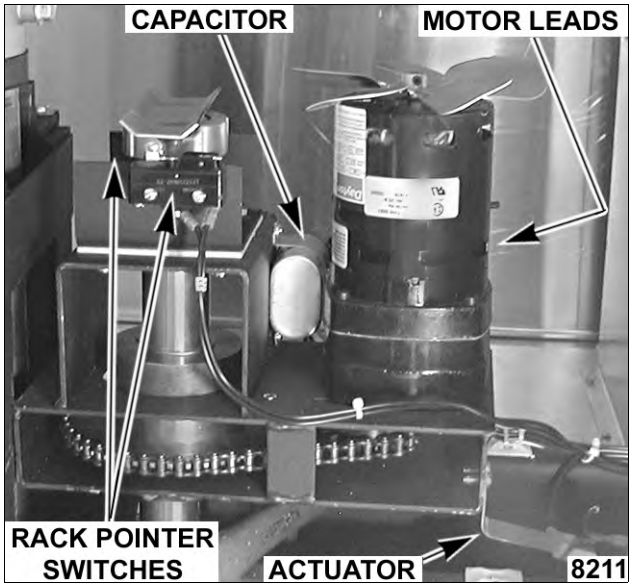
RACK ROTATOR ASSEMBLY

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

Removal

1. Remove rack carrier.
   - A. Support rack carrier.
   - B. Loosen set screws.
   - C. Remove snap ring from end of shaft.
   - D. Lower carrier to remove.
2. Remove rotator and lift assembly cover.
3. Remove actuator for rack up and down switches.

4. Disconnect lead wires from rack pointer switches, capacitor, and rotator motor.



5. Lift rack rotator assembly, which will include the rack lift shaft, from rack lift assembly.

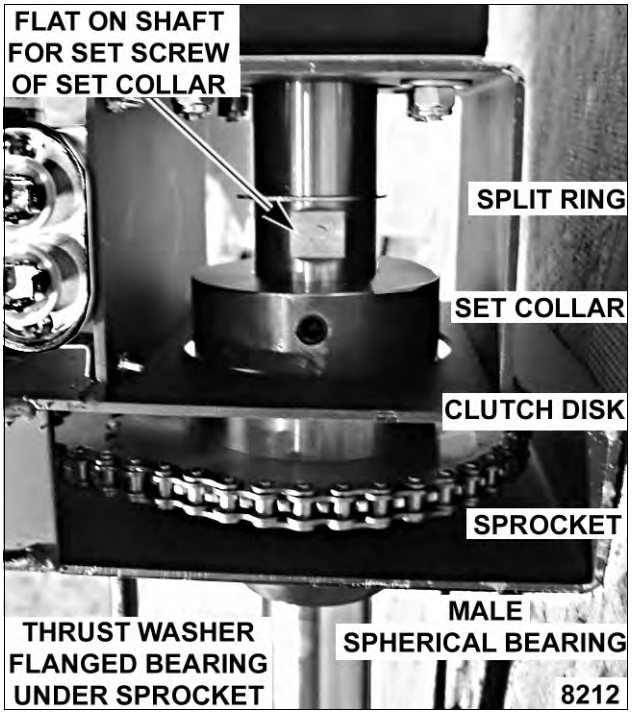
NOTE: Removal of actuator housing bolt may be necessary for rack rotator assembly removal.

Disassembly

1. Loosen set screw and remove rack pointer from shaft.
2. Loosen set screws securing the set collar to rotator shaft.
3. Remove the split ring from groove in rotator shaft.

NOTE: Remove split ring from shaft as you are removing shaft from assembly.

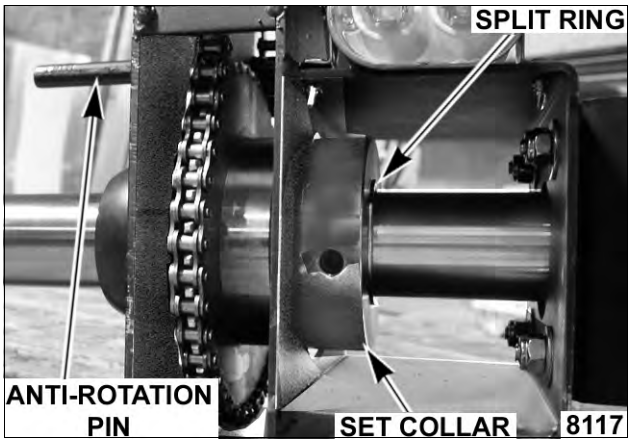
4. Pull rotator shaft from rotator assembly set collar, clutch disk, drive sprocket, thrush washer, flanged bearing and male half of spherical bearing.



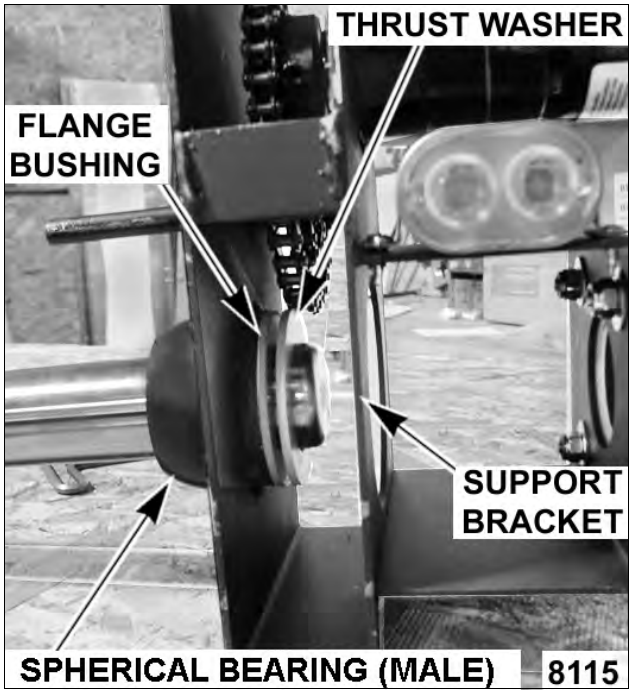
5. Remove rotator drive chain from sprocket teeth.
6. Remove flange bushing from rotator bracket.
7. Remove female half of spherical bearing from lift arm only if replacing.

Assembly

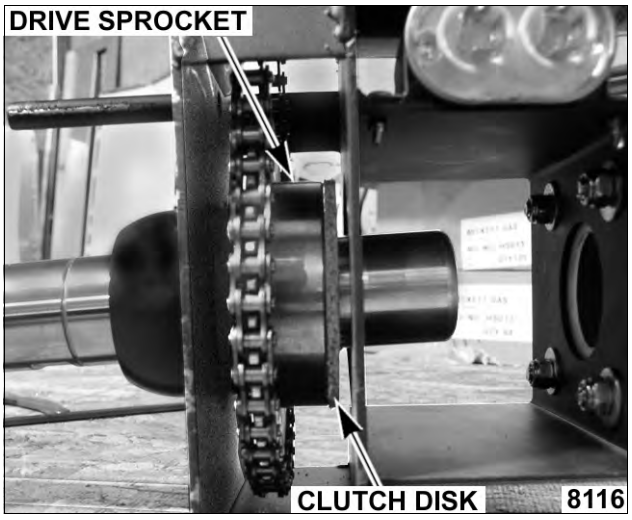
1. Install female half of spherical bearing into the lift arm if removed.



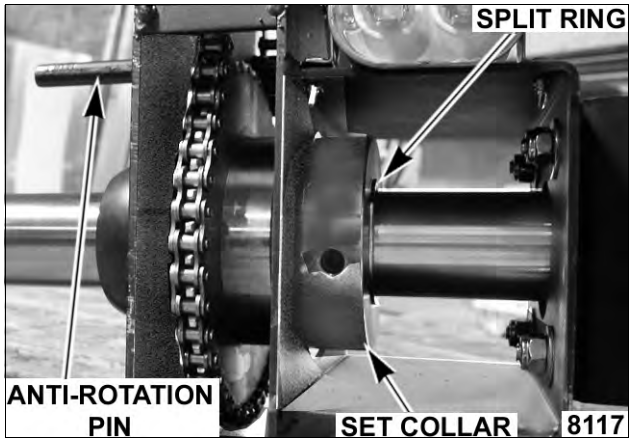
2. Apply high temperature grease to female half of spherical bearing. Spread grease evenly across bearing surface.
3. Install flange bushing into rotator assembly.
4. Install male half of spherical bearing, with taper to mate with female half, onto flanged bushing.
5. Insert rotator shaft into flange bushing from bottom of rotator assembly and install thrust washer.



6. Install drive chain around drive sprocket.
7. Continue to push the shaft through the rotator assembly. As you do, install drive sprocket onto shaft (tooth side towards thrush washer) before the shaft is beyond the support bracket.
8. Install clutch disk.



9. Install set collar with counter bore edge towards clutch and slide split ring onto shaft.
   A. Position set collar so set screw can be secured onto flat of rack lift shaft.
10. Install split ring into groove of rotator shaft.



11. Insert rotator shaft through female half of spherical bearing in lift arm.
12. Apply high temperature grease to drive chain.
13. Lower rotator assembly. Rotator shaft will align with bearings in rotator shaft housing.

NOTE: Anti rotation pin on rotator assembly must mate with anti rotation slot in lift arm.

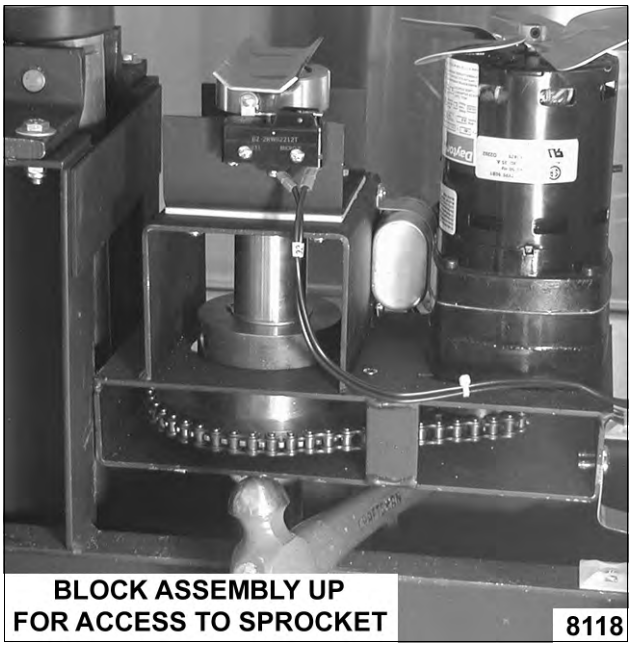
14. If removed earlier, install actuator housing screw and actuator for rack up and down switches.
15. Install rack pointer onto rotator shaft.
16. Install rack carrier.
17. Adjust rack pointer as outlined under RACK POINTER ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.
18. Adjust rack height as outlined under RACK HEIGHT ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.
19. Check for proper operation.

ROTATOR MOTOR

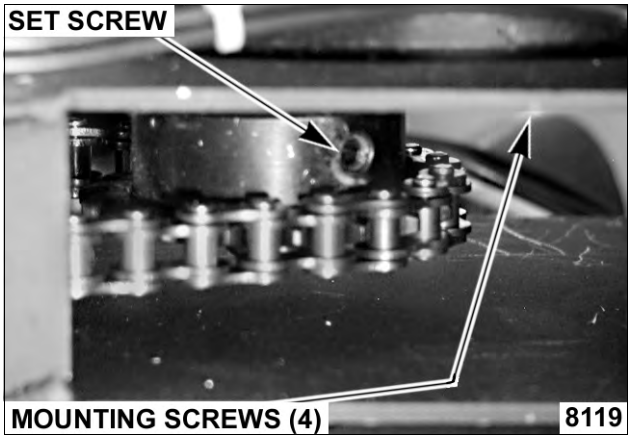
⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

Removal

1. Block the rack rotator assembly in a position to access the motor mounting bolts and sprocket set screw.



2. Disconnect the rotator motor lead wires.
3. Remove cooling fan from motor.
4. Loosen rotator motor sprocket set screw.
5. Remove rotator motor mounting screws.



6. Lift rotator motor and sprocket will stay in place.

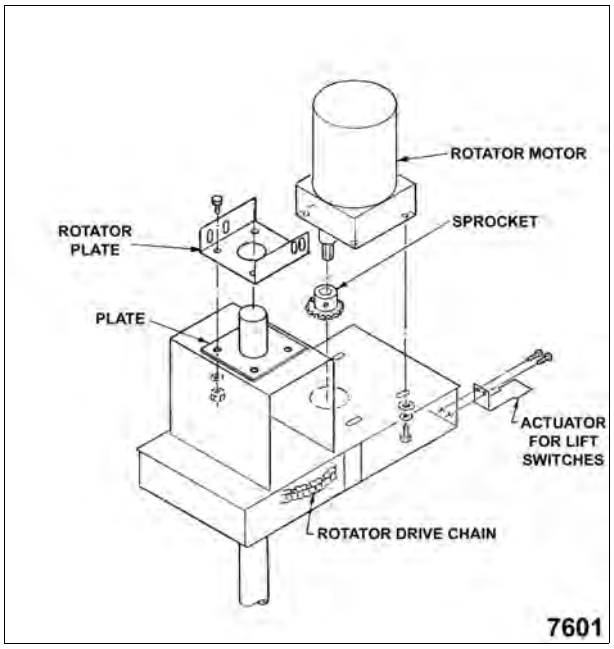
Assembly

1. Install rotator motor shaft through rotator assembly and rotator sprocket.
2. Position sprocket onto rotator motor shaft, collar side towards motor.
3. Install rotator motor mounting screws and align sprocket and rotator drive chain. Ensure rotator drive chain is not in a bind.
4. Secure set screw onto motor shaft.
5. Connect rotator motor lead wires.

NOTE: Shaft rotation viewed from top of oven.

Clockwise Rotation: Red wire = #20, Black wire = #53, White/White wires, recommended.

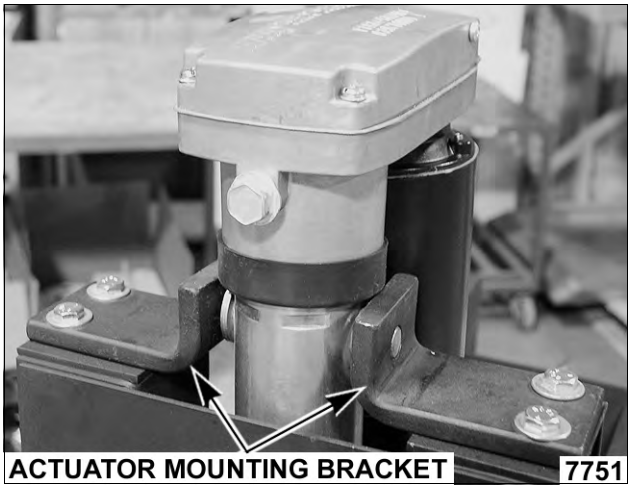
6. Install cooling fan to motor shaft.
7. Remove block from rotator assembly.
8. Check for proper operation.



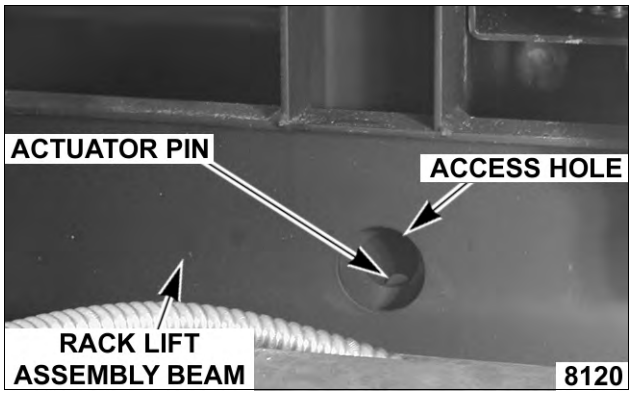
ACTUATOR

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Block the rack rotator assembly from moving.
2. Disconnect lead wires to actuator motor.
3. Remove top actuator mounting brackets from rack lift assembly.

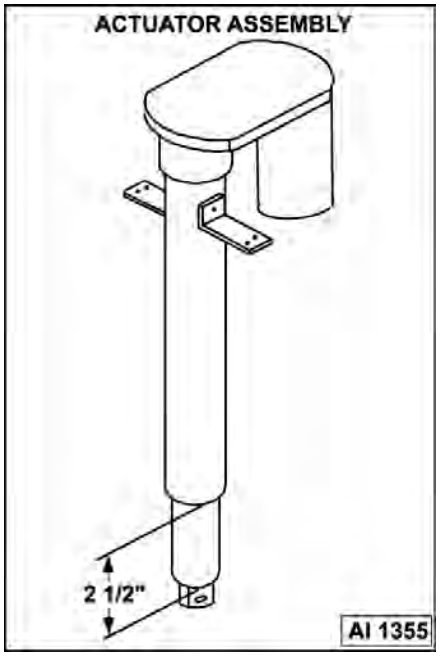


4. Align bottom actuator arm pin with access hole in side of rack lift assembly beam.



5. Block rack lift arm to prevent movement.
6. Remove actuator pin from the assembly and remove actuator from rack lift assembly.
7. Make sure replacement actuator is fully retracted. Turn end of actuator arm CCW 12 complete turns.

NOTE: Measure end of actuator arm to bottom of actuator arm housing, measurement should be approximately 2 1/2".



8. Install lower actuator arm pin through lift pin.
9. Position the rack rotator assembly so the top actuator mounting brackets will align with the rotator assembly.
10. Reconnect lead wires.
11. Put oven into use and check for proper operation.

CONVECTION BLOWER/MOTOR

⚠ WARNING **Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

NOTE: To follow this procedure, there must be 24" of clearance at the top of the oven. If not, the blower wheel must be accessed thru the heat exchanger compartment.

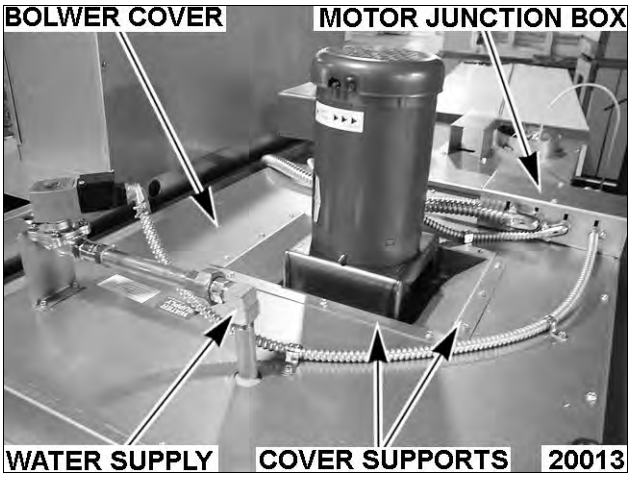
⚠ WARNING **Shut off the gas before servicing the unit.**

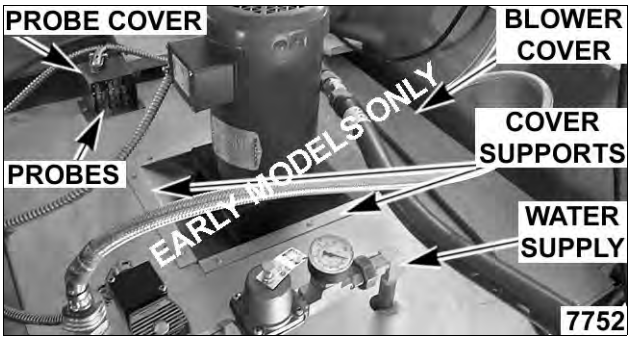
⚠ WARNING **All gas joints disturbed during servicing must be checked for leaks. Check with a soap and water solution (bubbles). Do not use an open flame.**

A. CHECK ALL JOINTS PRIOR TO THE GAS VALVE (SOLENOID) BEFORE LIGHTING UNIT.

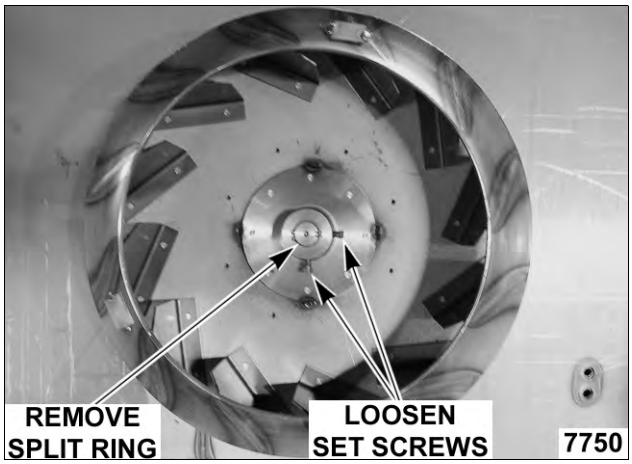
B. CHECK ALL JOINTS AFTER TO THE GAS VALVE (SOLENOID) AFTER THE UNIT IS LIT.

1. If necessary, move the gas line out of the way.
2. Shut off water supply line and remove exterior water supply that is within the boundary of blower cover.
3. Disconnect lead wires at motor junction box.
4. Remove motor junction box.
5. Remove probe cover and any existing probes.
6. Remove blower cover supports.
7. Remove blower cover.

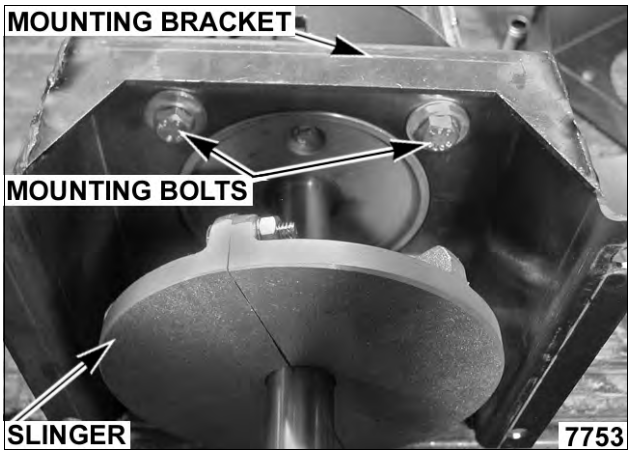




8. Remove insulation.
9. Remove screws from blower mounting assembly and remove complete blower assembly.
10. Loosen set screws in blower wheel hub.
11. Remove split ring from shaft.
12. Remove blower wheel from motor shaft.



13. Remove screws securing motor mounting bracket and remove motor assembly.



14. Remove heat slinger and mounting bracket from motor.
15. Reverse the procedure to install.

GAS VALVE

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

⚠ WARNING Shut off the gas before servicing the unit.

⚠ WARNING All gas joints disturbed during servicing must be checked for leaks. Check with a soap and water solution (bubbles). Do not use an open flame.

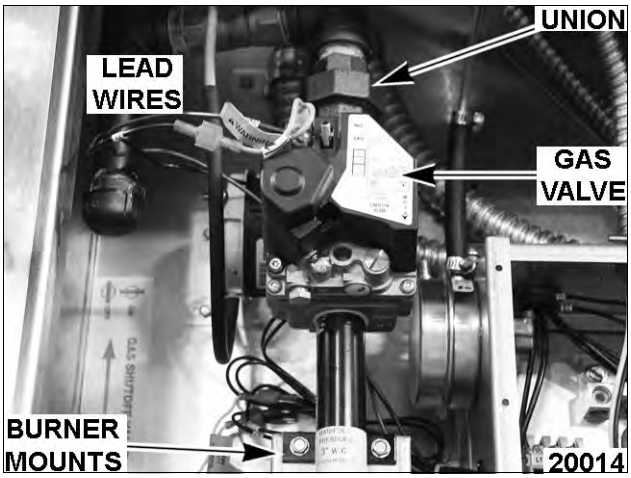
A. CHECK ALL JOINTS PRIOR TO THE GAS VALVE (SOLENOID) BEFORE LIGHTING UNIT.

B. CHECK ALL JOINTS AFTER TO THE GAS VALVE (SOLENOID) AFTER THE UNIT IS LIT.

1. Open control compartment door to gain access to gas manifold assembly.
2. Disconnect the gas supply union fitting from gas manifold assembly.

NOTE: The burner mounts may have to be loosed to allow the gas valve to rotate.

3. Remove the valve from the burner manifold.



4. Reverse procedure to install.
5. Check gas pressure as outlined under GAS PRESSURE SETTINGS in SERVICE PROCEDURES AND ADJUSTMENTS.
6. Operate oven and check for proper operation.

GAS MANIFOLD / ORIFICES

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

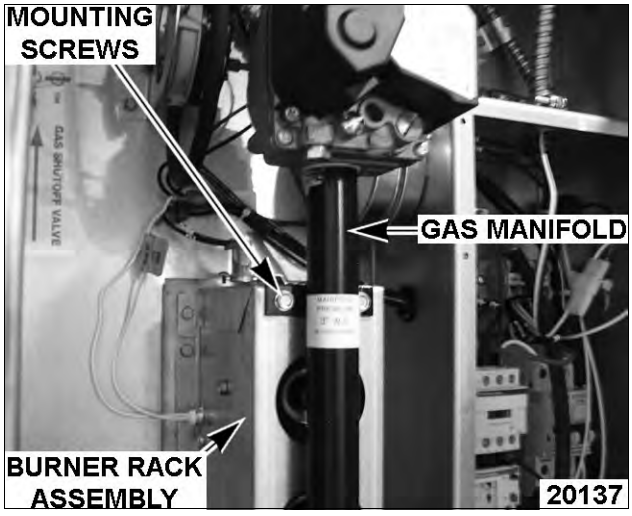
⚠ WARNING Shut off the gas before servicing the unit.

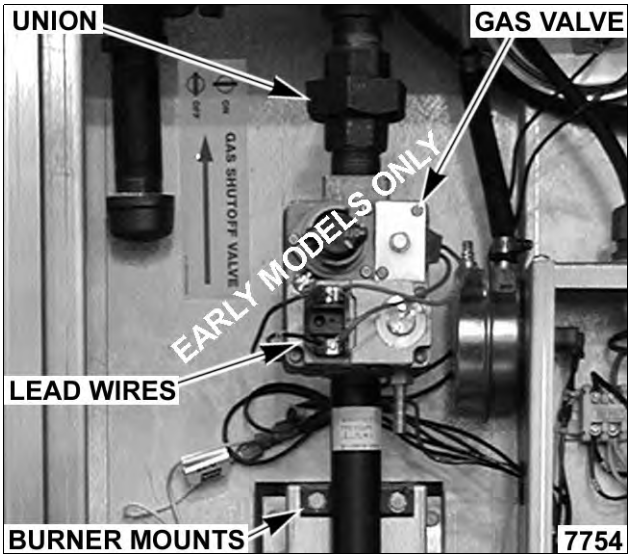
⚠ WARNING All gas joints disturbed during servicing must be checked for leaks. Check with a soap and water solution (bubbles). Do not use an open flame.

A. CHECK ALL JOINTS PRIOR TO THE GAS VALVE (SOLENOID) BEFORE LIGHTING UNIT.

B. CHECK ALL JOINTS AFTER TO THE GAS VALVE (SOLENOID) AFTER THE UNIT IS LIT.

1. Open control compartment door to gain access to gas manifold assembly.
2. Disconnect lead wires to gas valve, ignitor and flame sensor.
3. Disconnect the gas supply union fitting from gas manifold assembly.
4. Remove all screws securing gas manifold to burner rack assembly.





5. Pull gas manifold from burner rack assembly.
6. Remove orifice fitting from gas manifold.

NOTE: Note orifice size for natural or L.P.

7. Reverse the procedure to install.

HEAT EXCHANGER

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

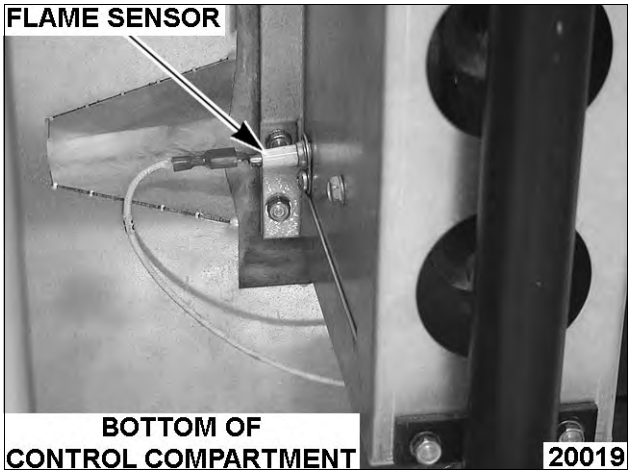
⚠ WARNING Shut off the gas before servicing the unit.

⚠ WARNING All gas joints disturbed during servicing must be checked for leaks. Check with a soap and water solution (bubbles). Do not use an open flame.

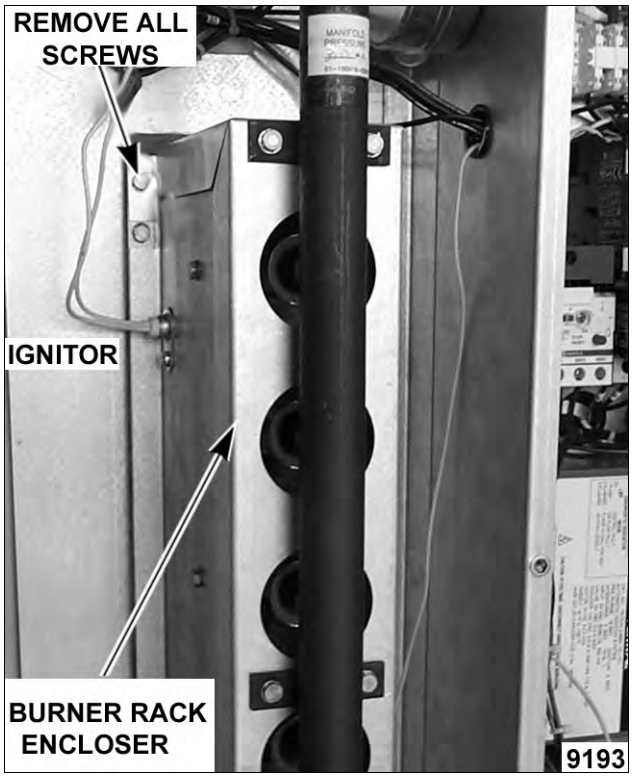
A. CHECK ALL JOINTS PRIOR TO THE GAS VALVE (SOLENOID) BEFORE LIGHTING UNIT.

B. CHECK ALL JOINTS AFTER TO THE GAS VALVE (SOLENOID) AFTER THE UNIT IS LIT.

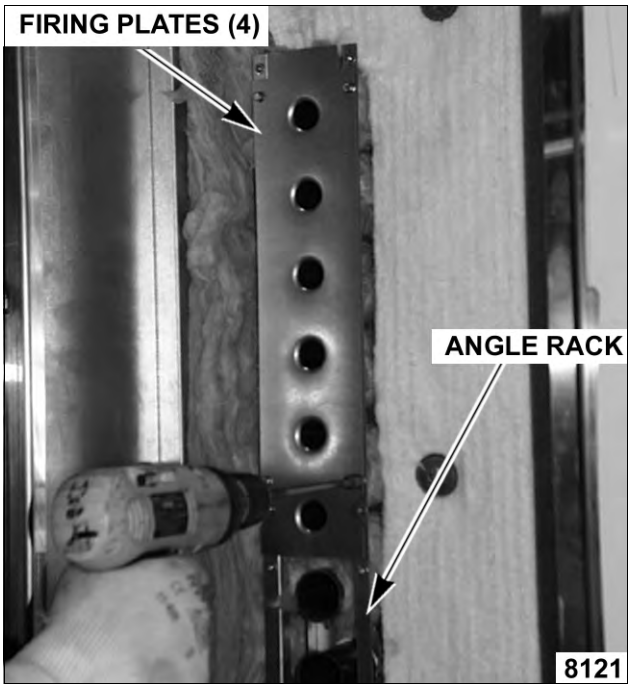
1. Disconnect gas manifold at the union fitting.
2. Disconnect flame sensor lead wire.



3. Remove screw securing hot surface ignitor to burner side rack assembly, and pull ignitor out.
4. Remove screws securing burner rack enclosure from oven.

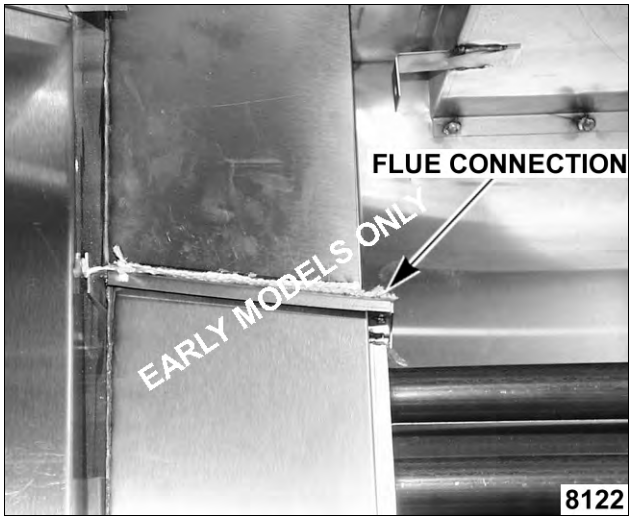


5. Remove burner firing plates HBA2G & BXA2G only.
6. Remove burner angle rack HBA2G & BXA2G only.



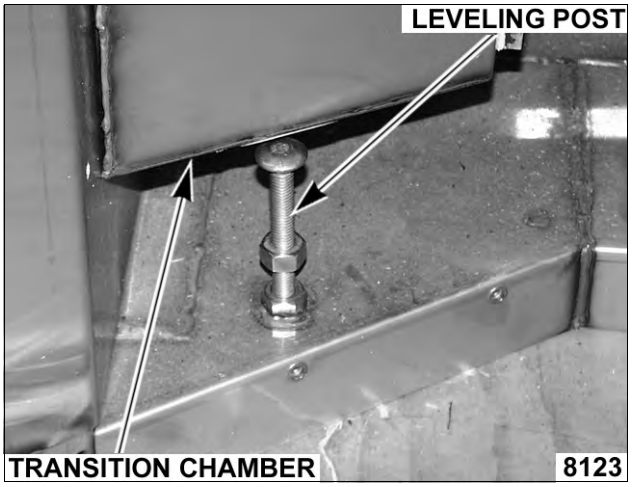
7. Remove steam and exchanger compartment panels.
8. Remove steam ball assembly.
9. Remove screws from heat exchanger and flue connection HBA2G & BXA2G only. For HBA1G & BXA1G oven, access draft inducer box on top of oven and remove. Disconnect deflector baffle from hangers above heat exchanger tubes and remove from top of tubes HBA2G & BXA2G only.

NOTE: Later model ovens do not have a heat exchanger to flue connection. Flue is a single piece construction.



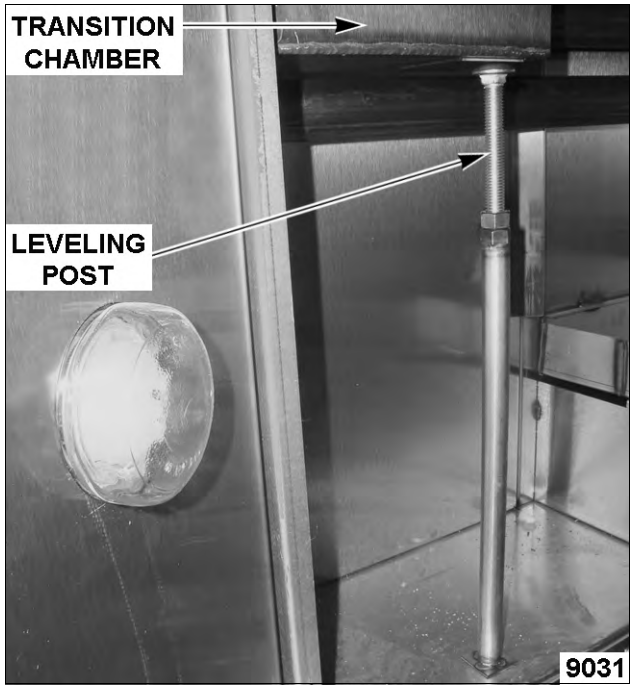
10. Lower leveling post to allow room at flue connection and transition chamber.

HBA2G & BXA2G OVENS

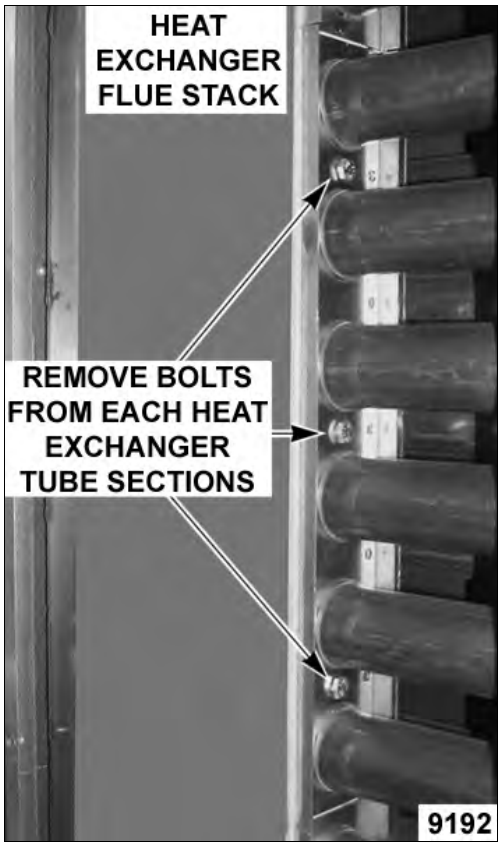


11. HBA2G & BXA2G oven pull rear of heat exchanger into the oven cavity. As you slide rear of heat exchanger, pull heat exchanger to rear of compartment to free front of heat exchanger.

HBA1G & BXA1G OVENS

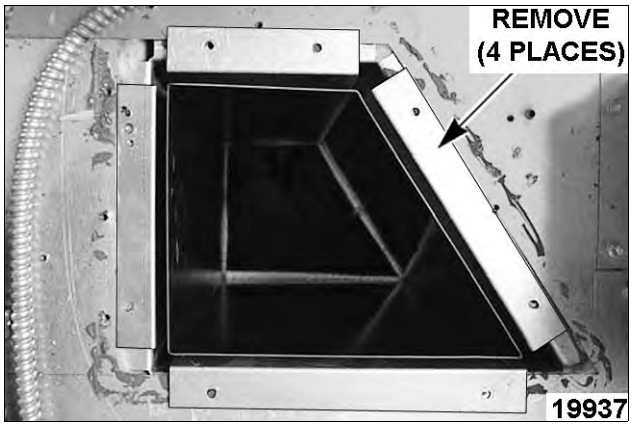


12. HBA1G & BXA1G oven remove screws securing heat exchanger tube sections from oven. Early modes only have more than 3 screws.



13. Replace heat exchanger tubes and flue sections as needed.

NOTE: To aid installation of new flue, remove draft inducer box and the four exhaust stack retainers.

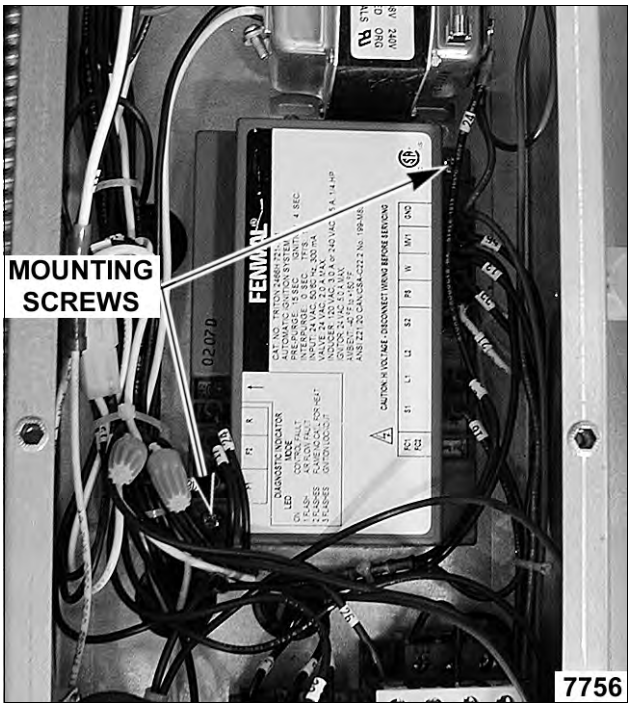


14. Reverse the procedure to install.

IGNITION MODULE

⚠ WARNING **Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

1. Open the control compartment door to gain access to ignition module.
2. Remove control box cover.
3. Disconnect lead wires from the ignition module. **Note** Wire locations or refer to wiring diagram.
4. Remove screws securing ignition module to oven.
5. Reverse the procedure to install.



CONTROLLER

⚠ WARNING **Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

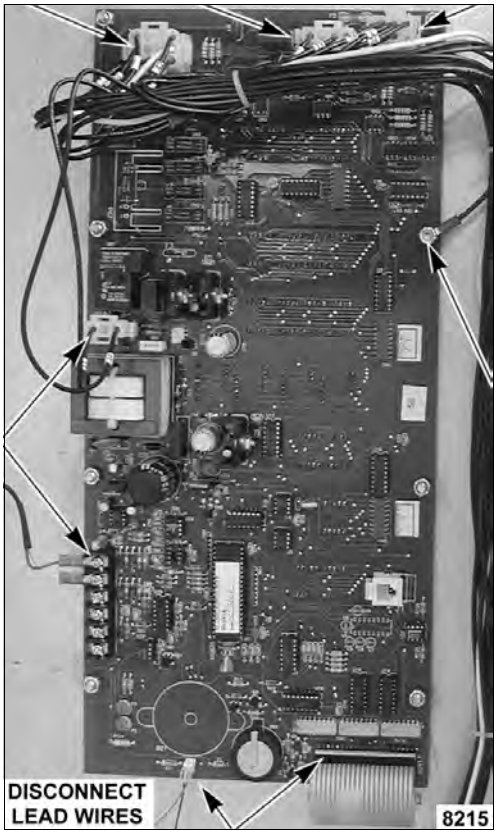
NOTICE Certain components in this system are subject to damage by electrostatic discharge during field repairs. A field service grounding kit is available to prevent damage. The field service grounding kit must be used anytime the control board is handled.

1. Open the control compartment door to gain access to controller.
2. Remove controller rear cover.

3. Disconnect all control harness connections.

NOTE: Ovens with Kosher operation will have a connector for the key lock switch to be disconnected.

4. Remove nuts and washers securing controller to controller panel.



NOTE: When installing ensure stand off spacers are installed behind controller board.

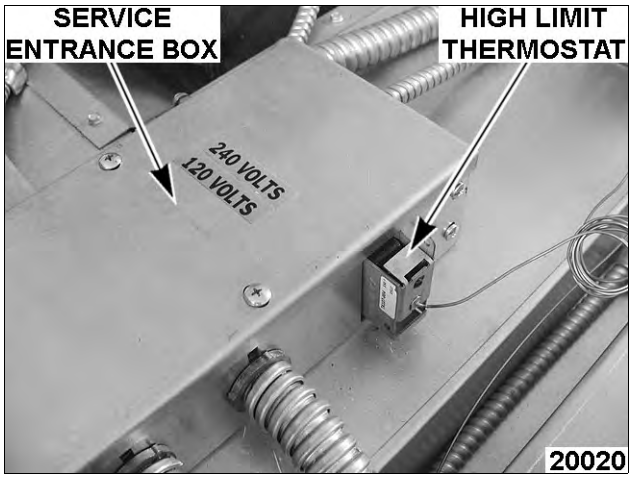
5. Reverse the procedure to install.
6. Check oven for proper operation.

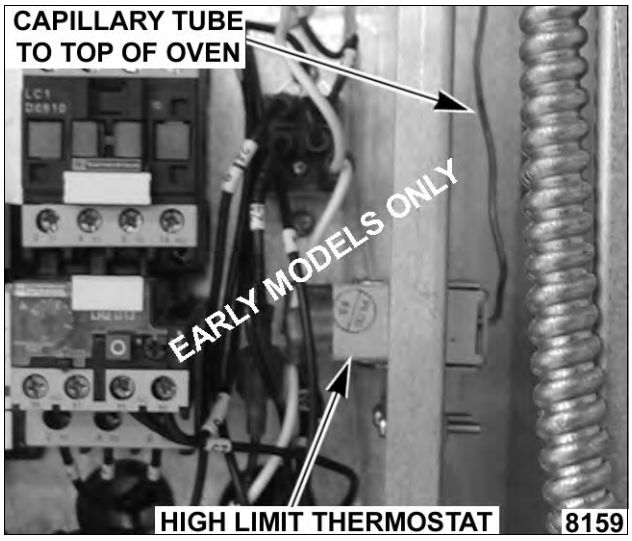
HIGH LIMIT SWITCH

⚠ WARNING **Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

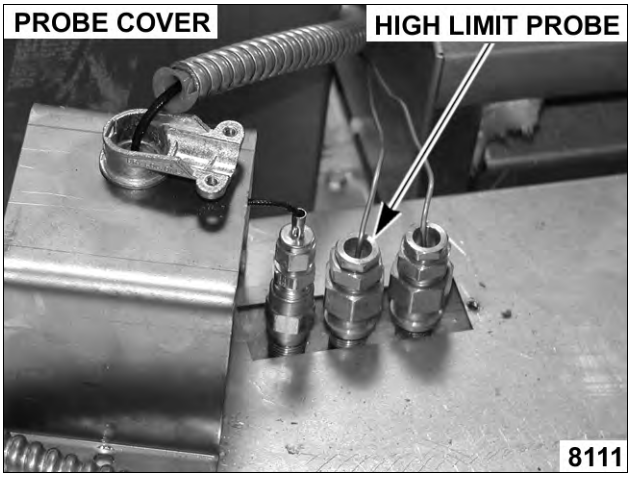
NOTE: On HBA1G & BXA1G oven, access high limit switch at top of oven in service entrance box.

1. Open control compartment door and remove component box cover.
2. Disconnect high limit switch lead wires.
3. Remove screws securing high limit switch to component box or service entrance box.





4. Access high limit probe at top of oven.
5. Remove screws securing probe cover.
6. Remove high limit probe fitting from oven and pull high limit out.

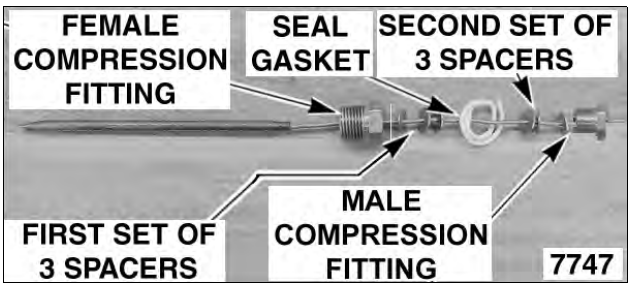


To install:

1. Install high limit in component box.
2. Connect lead wires to high limit.
3. Route high limit capillary tube to top of oven.
4. Mark 12" from end of probe.
5. Insert male compression fitting onto high limit probe.
6. Install female fitting into center probe location.
7. Insert 12" of high limit probe into oven. Ensure that high limit probe goes through both inner and outer walls of oven.

NOTE: Remove vent lid to aid in feeling for high limit probe protruding down through oven.

8. Install first set of 3 spacers into high limit fitting.
9. Pack seal gasket material around probe into high limit fitting.
10. Insert second set of 3 spacers into high limit fitting.
11. Tighten male compression fitting against second set of spacers to secure high limit probe.



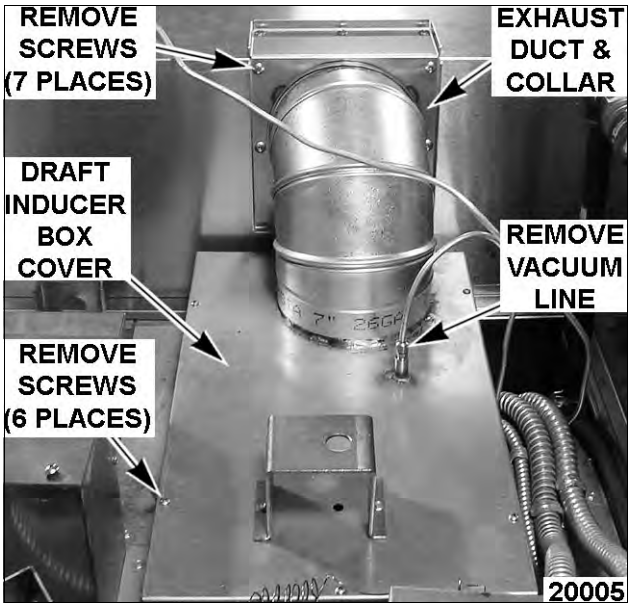
12. Install probe cover.
13. Check oven for proper operation.

DRAFT INDUCER MOTOR

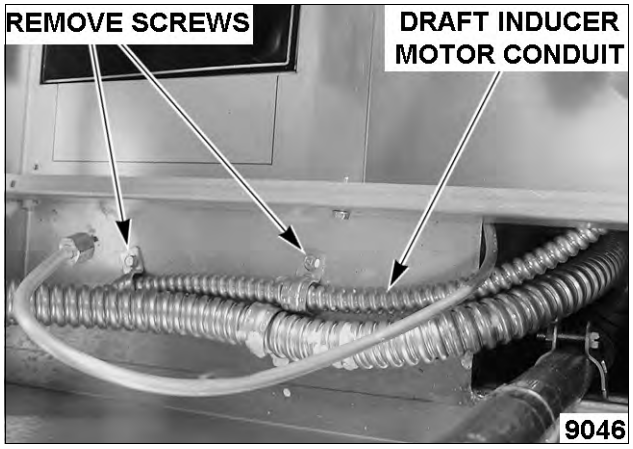
⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

HBA1 & BXA1 Ovens and HBA2 & BXA2 Later Models Only

1. Access draft inducer box from top of oven.
2. Remove vacuum line from fitting on draft inducer housing.
3. Remove screws securing draft inducer exhaust duct & collar to hood.
4. Remove screws securing draft inducer cover to box.



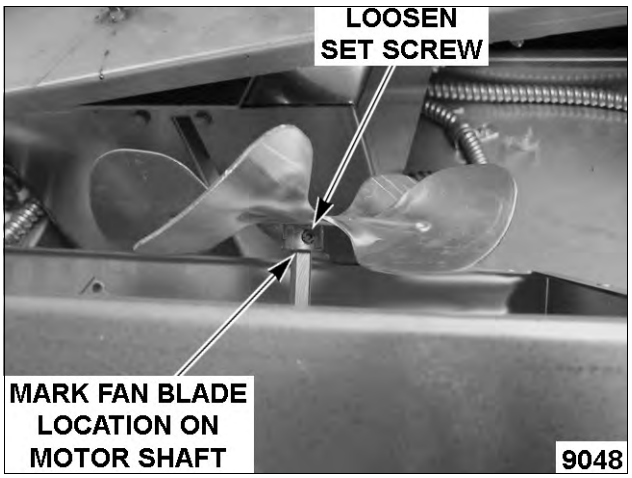
5. Remove screws securing draft inducer motor (flex) conduit clamps from oven.



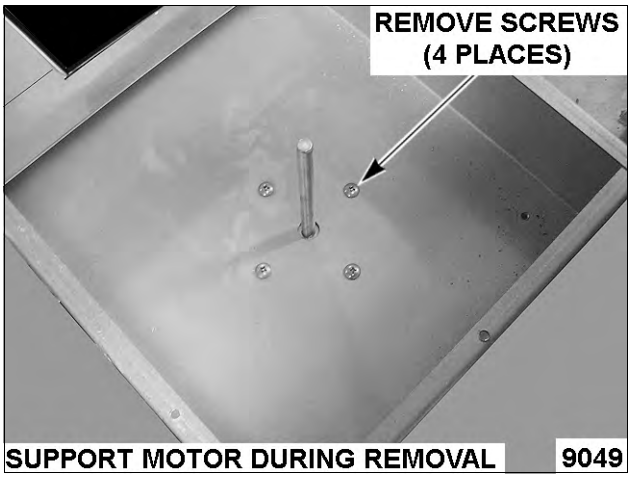
6. Remove screws securing draft inducer box and lift box from oven.

NOTE: Make note of dimension that draft inducer fan blade is located on motor shaft, for installing fan blade on to new motor.

7. Loosen set screw securing fan blade from draft inducer motor shaft.



8. Disconnect lead wires from draft inducer motor.
9. Remove screws securing draft induce motor from draft inducer box.

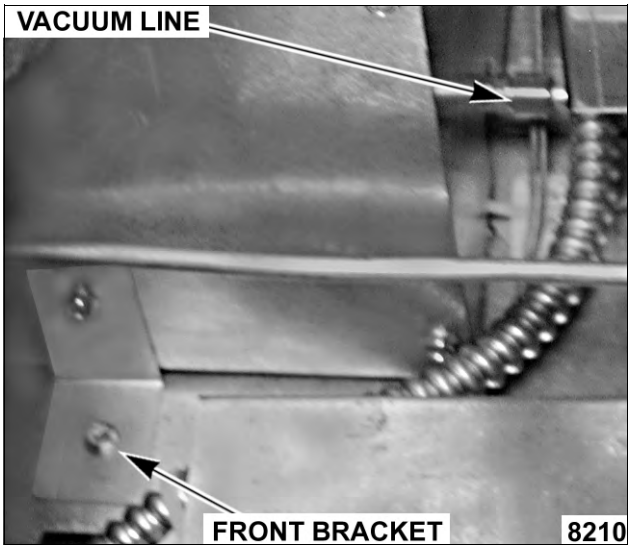


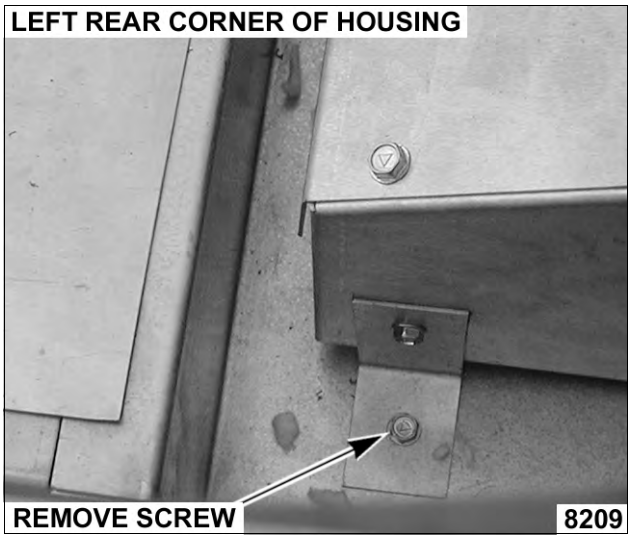
10. Reverse the procedure to install.

11. Check for proper operation.

HBA2 & BXA2 Early Models Only

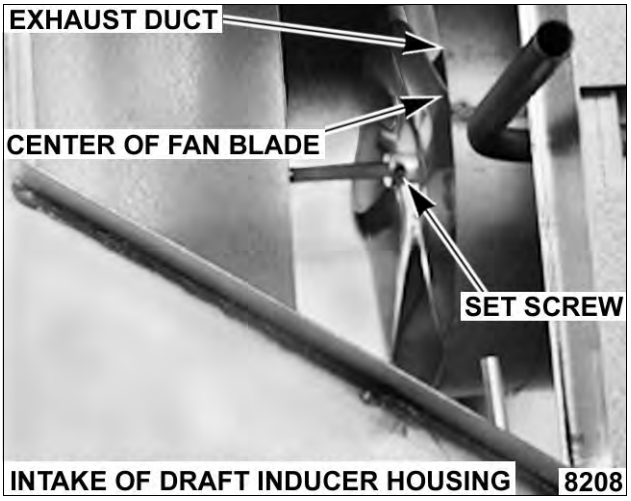
1. Disconnect lead wires from motor.
2. Remove cover and insulation from draft inducer exhaust duct.
3. Disconnect vacuum line from fitting on draft inducer housing.
4. Remove screws from housing mounting brackets.



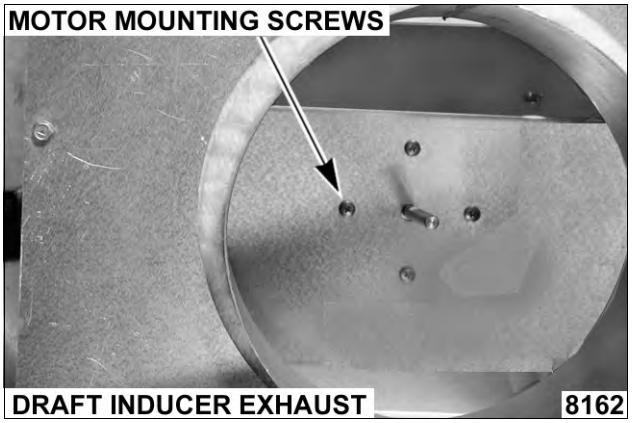


5. Manipulate housing assembly to access opening on bottom of housing.
6. Loosen draft inducer fan set screw and pull fan blade from draft inducer motor shaft.

NOTE: When installing, align center of fan blade with inside edge of exhaust duct.



7. Remove screws securing draft inducer motor from housing and remove motor from rear side.

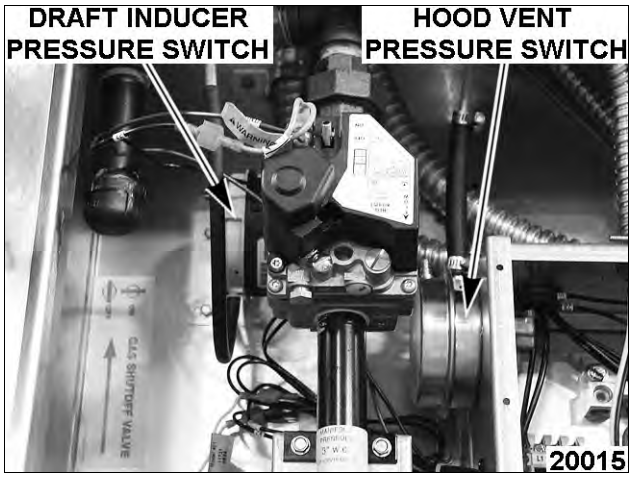


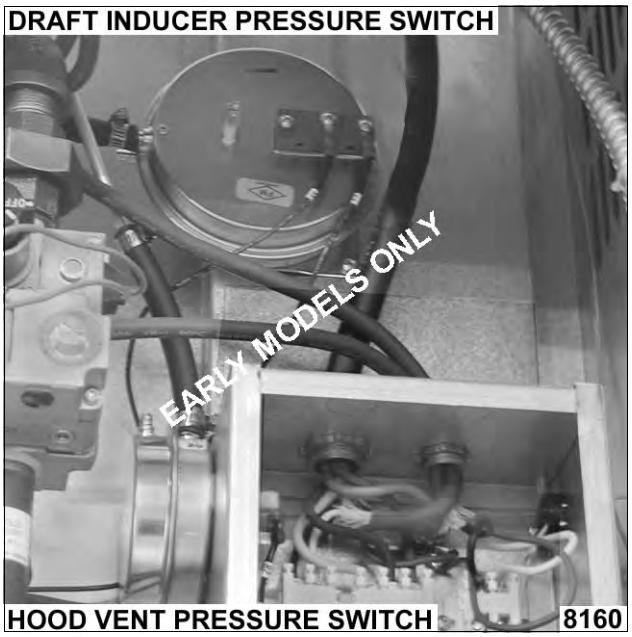
8. Reverse procedure to install.
9. Check for proper operation.

PRESSURE SWITCHES

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Open control compartment door to gain access draft inducer vacuum switch and hood vent pressure switch.
2. Disconnect lead wires from appropriate pressure switch.
3. Remove tube from pressure switch.
4. Remove screws securing pressure switch.



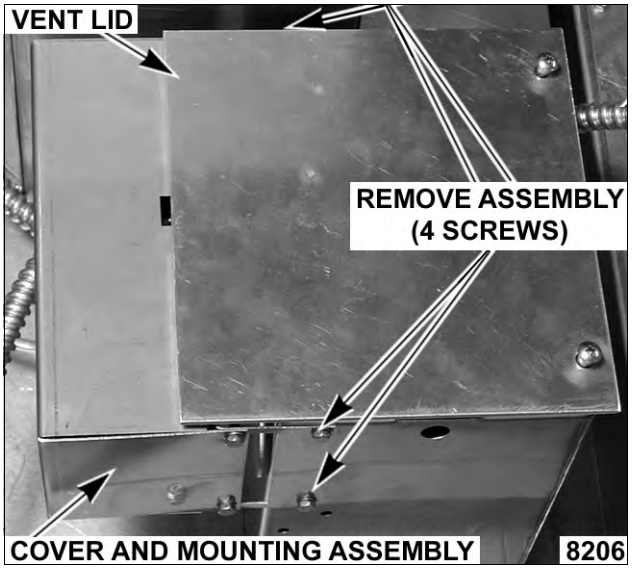


5. Reverse the procedure to install.

OVEN CAVITY VENT MOTOR

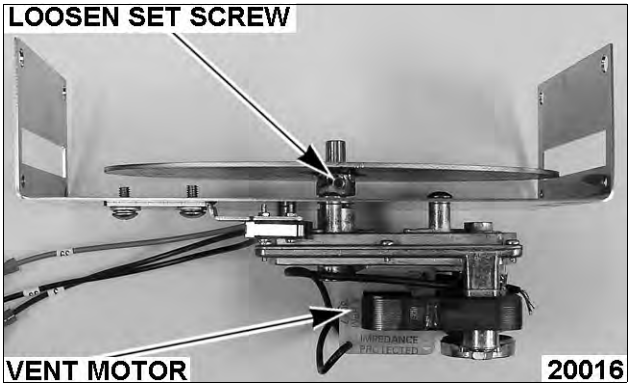
⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

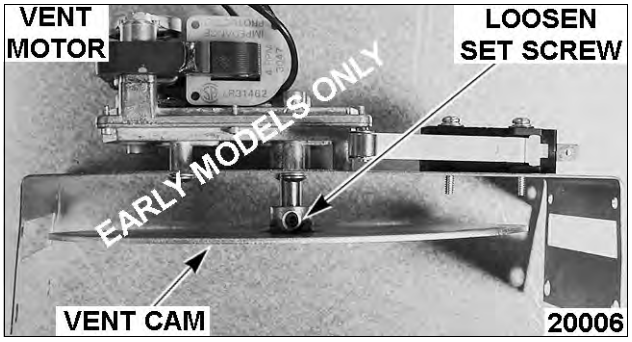
1. Remove vent lid.
2. Remove screws securing vent motor cover and mounting assembly from vent box.



3. Disconnect lead wires from vent motor and vent switch.
4. Loosen vent cam set screw and remove cam from shaft.

NOTE: Mark location of cam on vent motor shaft.





NOTE: When installing, position cam on motor shaft to prevent rubbing.

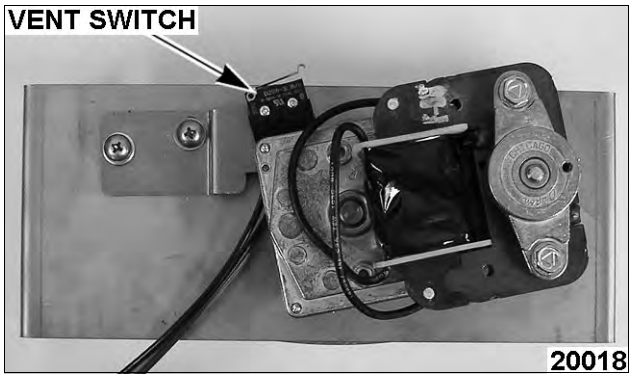
5. Remove screws securing vent motor from vent motor bracket.

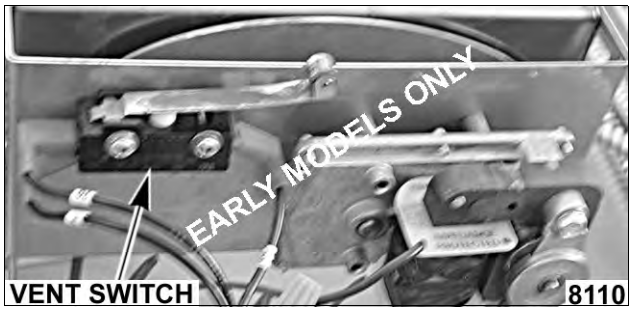
6. Reverse the procedure to install.

OVEN CAVITY VENT SWITCH

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove screws securing vent motor cover from vent motor box.



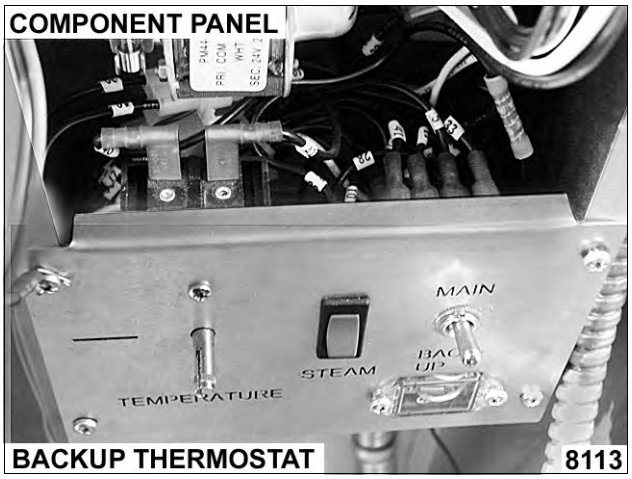


2. Disconnect lead wires from vent switch.
3. Remove screws securing vent switch from vent bracket.
4. Reverse procedure to install.

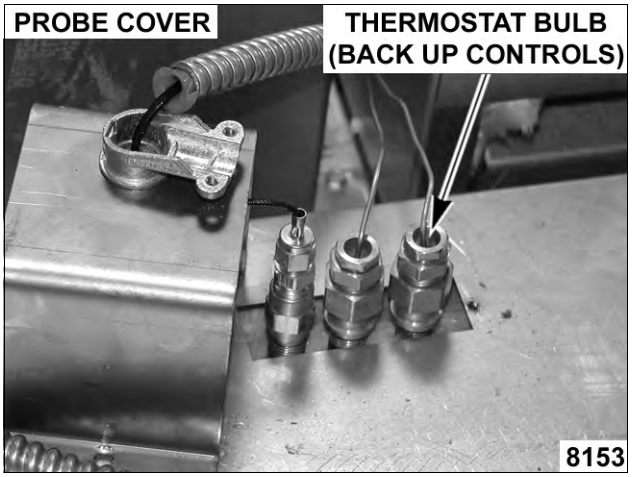
THERMOSTAT (BACK UP SYSTEM ONLY)

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Open control compartment door to gain access to backup thermostat.
2. Remove component panel cover.
3. Remove screws securing back up system panel from control box.
4. Disconnect lead wires from backup thermostat.
5. Remove screws securing thermostat from backup system panel.

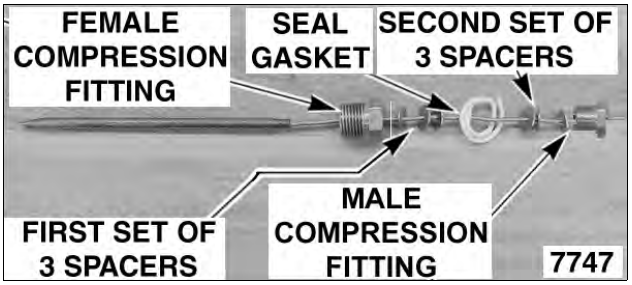


6. Access the thermostat bulb at top of the oven.
7. Remove screws securing probe cover from oven.
8. Remove compression fitting and remove thermostat bulb.



To install:

1. Install backup thermostat in component panel.
2. Connect lead wires to high limit.
3. Route thermostat capillary tube to top of oven.
4. Mark 8 3/4" from end of probe.
5. Insert male compression fitting onto thermostat probe.
6. Install female fitting into bulb location.
7. Insert 8 3/4" of backup thermostat into oven. Ensure that backup thermostat bulb doesn't touch inner walls of oven.
8. Install first set of 3 spacers over capillary tube and allow them to go into the female compression fitting.
9. Pack seal gasket material around capillary tube.
10. Insert second set of 3 spacers over capillary tube and allow them to go into the female compression fitting.
11. Tighten male compression fitting against second set of spacers to secure backup thermostat bulb.

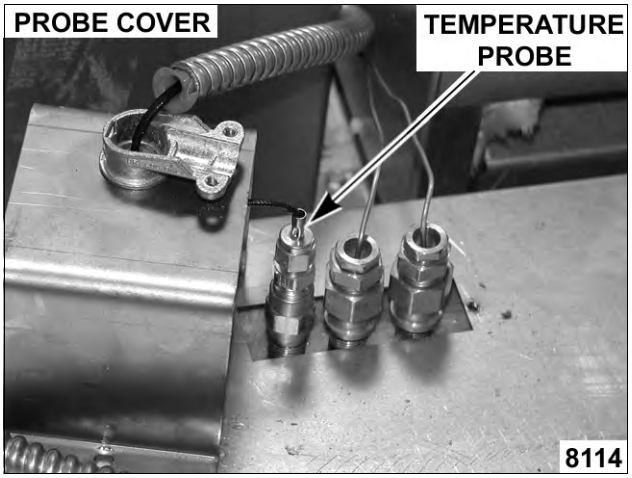


12. Install probe cover.
13. Check oven for proper operation.

TEMPERATURE PROBE

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Access the probe at top of the oven.
2. Remove screws securing probe cover from oven.
3. Remove compression fitting and remove probe from oven.



4. Open the control compartment door to gain access to controller.
5. Remove cover from controller box.
6. Disconnect temperature probe lead wires from controller board.
7. Remove temperature probe from oven.

NOTE: Temperature probe should be install approximately 8 3/4" down from top of probe fitting into oven compartment.

8. Reverse the procedure to install.

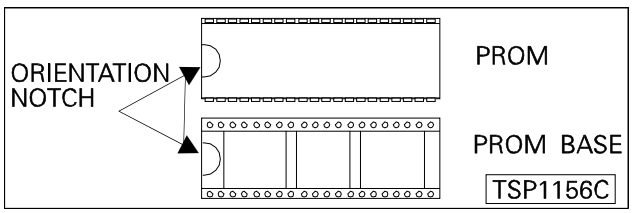
EPROM REPLACEMENT

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Open the control compartment door to gain access to controller.
2. Remove the controller box cover.

NOTICE Static electricity will damage the controller board. Use an anti-static grounding kit when servicing the controller.

3. Remove the prom from the controller.
4. Install the new prom. Verify orientation notch and carefully align pins of prom.



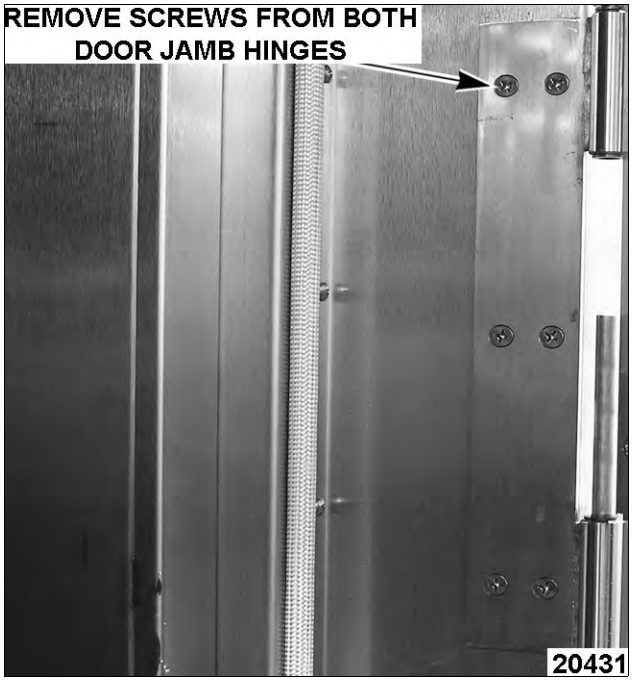
5. Re-assembly the oven.
6. Perform controller default settings as outlined under CONTROLLER DEFAULT SETTINGS.

7. Check for proper operation.

DOOR SWING CHANGE

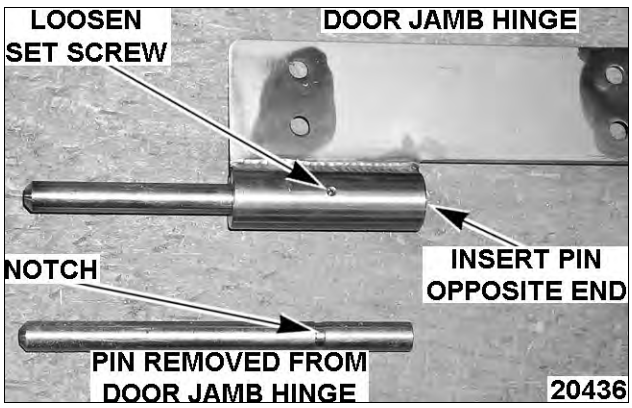
⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Open the door at least 90 degrees.
2. Remove door sweep from door assembly.
3. Use a J bar to lift door from center bottom off the door hinges and set aside.
4. Remove both door jamb hinges from door jamb.



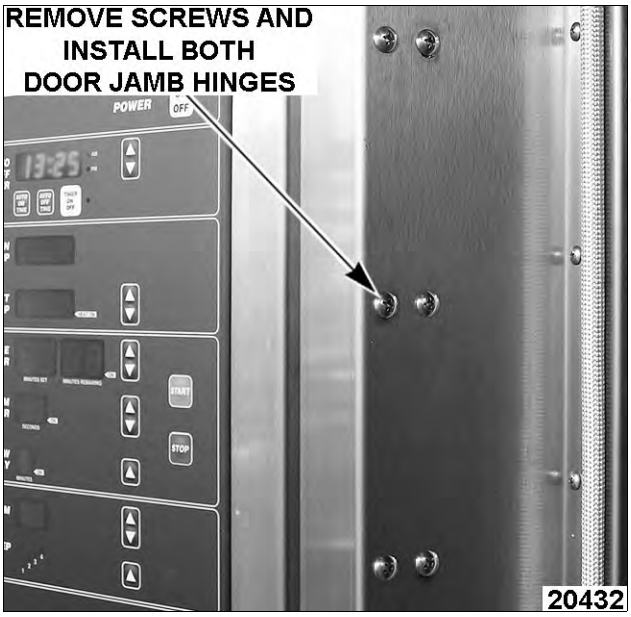
A. On later models only, the door jamb hinge set screws will need to be loosen to remove hinge pins and insert in opposite direction (upward).

NOTE: Ensure hinge pin set screws engage into notch in pin and tighten set screws.



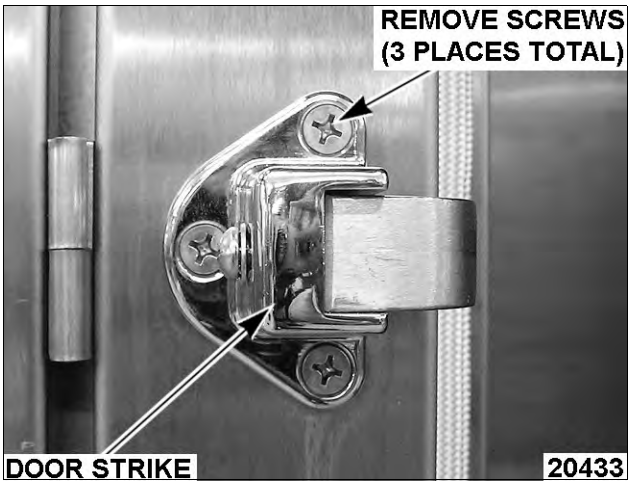
5. Remove pan head screws on opposite side of door jamb and install both door jamb hinges with flat head screws.

NOTE: Leave one door jamb hinge loose to aid installation of door assembly.



A. Install pan head screws into other side of door jamb were hinges removed from.

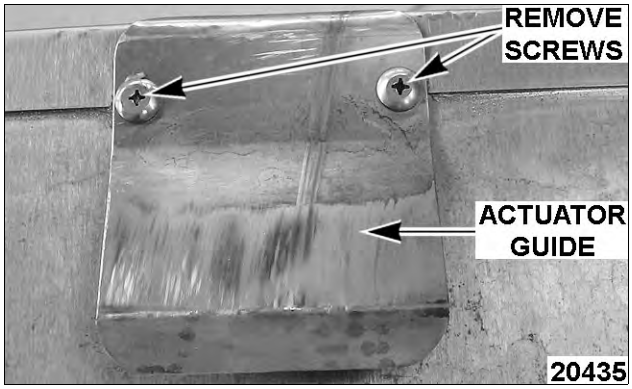
6. Remove door strike from door jamb.



A. Remove screws securing cover plate on opposite side of door jamb and install door strike.

B. Install cover plate onto other side of door jamb strike was removed from.

7. Remove screws securing door switch actuator guide to door and install on opposite end of door.



8. Rotate door such that top of door is at the bottom and install door onto door hinges.

9. Use a J bar from center bottom to install door onto door hinges.

NOTE: Tighten door jamb hinge if left loose to aid installation of door assembly.

10. Adjust the door as outlined under DOOR ADJUSTMENT in SERVICE PROCEDURE AND ADJUSTMENTS.

11. Install door sweep onto door assembly at bottom of door.

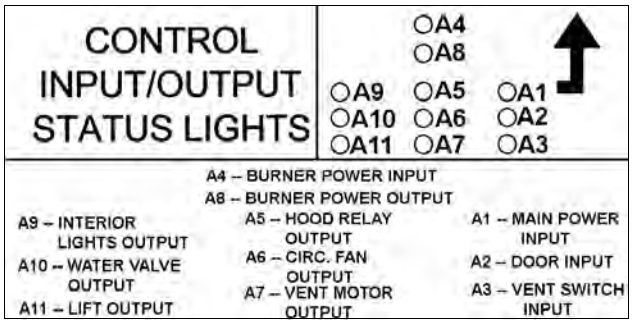
SERVICE PROCEDURES AND ADJUSTMENTS

⚠ WARNING Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow lockout / tagout procedures, attach test equipment and reapply power to test.

CONTROLLER INPUT/OUTPUT STATUS DIAGNOSTIC

1. Turn oven on.
2. Check controller input/output status indicator LED's on back of controller, for proper input/output operation during various stages of operation.

NOTE: Use oven sequence of operation in conjunction with diagram.



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3. Correct any improper input/output operation.
4. Check oven for proper operation.

IGNITION MODULE SELF DIAGNOSTICS

Ignition module makes three attempts to light burner before proceeding to lock-out mode.

1. Turn oven on and set controller to call for heat.
2. Access the ignition module by removing component panel cover.
3. Check ignition module indicator LED for fault codes as stated in following chart.

NOTE: LED will briefly illuminate during pre-purge.

LED DIAGNOSTIC INDICATOR CODES	
LED	**CODES**
LED off	No Fault
LED on	Control Fault
'1' Flash	Air Flow Fault
'2' Flash	Flame No Call For Heat*
'3' Flash	Ignition Lockout

NOTE: Flame continues after controller set temperature is satisfied. (Gas valve sticks open.)

4. Disconnect power to oven.
5. Correct the fault.
6. Re-apply power.
7. Check ignition module for correct operation.

TEMPERATURE PROBE TEST

1. Access controller board.
2. Disconnect temperature probe lead wires from controller board.
3. Set the multi meter to milli volt scale and connect positive lead (red) to the (white) probe lead wire and negative lead (black) to (red) probe lead wire.
4. Verify the multi meter reading to the temperature conversion chart as follows.

TEMPERATURE CONVERSION CHART		
FAHRENHEIT	**CELSIUS**	**MILLIVOLT RANGE**
100	38	-1.8 to 1.2
200	93	1.5 to 4.3
300	149	4.5 to 7.3
400	204	7.5 to 10.6

5. If multi meter reading indicates an open or is outside the millivolt range, replace the temperature probe as outlined under TEMPERATURE PROBE.

CONTROLLER TEMPERATURE CALIBRATION

NOTICE Certain components in this system are subject to damage by electrostatic discharge during field repairs. A field service grounding kit is available to prevent damage. The field service grounding kit must be used anytime the control board is handled.

1. Check setting of controller temperature offset (P4) as outlined under CONTROLLER DEFAULT SETTINGS.
2. Verify that the probe is functioning properly as outlined under TEMPERATURE PROBE TEST.
3. Place a thermocouple of a temperature tester in the center of right incoming air slot of the bake chamber.
   A. Route thermocouple through hinge side of door to the outside of the oven. Make sure that the lead wire is kept clear of the rack carrier.
4. Set the controller temperature to 400°F.
5. Allow the oven temperature to stabilize (minimum 3 cycles).
6. Note temperature reading on temperature tester and controller at the exact time the heat light on the controller goes out.
7. If the temperature difference between the two readings is greater than ±2°F or ±1°C, adjust the temperature offset (P4) as outlined under CONTROLLER DEFAULT SETTINGS.
   A. If temperature test shows a temperature higher than controller, increase offset (P4).
   B. If temperature test shows a temperature lower than controller, decrease offset (P4).
   C. If temperature difference is greater than the range of the controller, replace controller (range ±50°F.)
8. Check for proper operation.
9. Remove temperature tester thermocouple from the oven.

CONTROLLER SETTINGS

CLOCK SETTING

1. Press the **Power On/Off** keypad to turn the oven on.
2. Press and hold either **Auto On/Off Timer Up/Down Arrows** for 3 seconds.
3. After the colon stops flashing use the **Up/Down Arrows** to adjust the clock setting.
   A. After the desired time is set and the **Up/Down Arrows** have not been pressed for 5 seconds, the colon will start to flash indicating the clock has continued running.

PARAMETER SETTINGS

1. Access set-up mode by pressing and holding **Start** while pressing **Power On/Off** for 3 seconds.
2. Press **Set Temp Up Arrow** to select set-up item shown in timer display.
3. Use the **Bake Timer Arrows** to adjust set-up number in the temperature display.
4. Use the following chart to restore default settings.

NOTE: Early models only controller will have up to Parameter setting P19.

CONTROLLER DEFAULT SETTINGS			
Timer Display	**Set-Up Item**	**Descriptions**	**Settings Shown In Temperature Display**
P1	Maximum temperature set point	This is the maximum temperature at which the oven can be set.	Set for **525**°F (range 50 to 525°F)
P2	Preheat temperature	This is the default temperature set point when the oven is first turned on (program 0). The preheat temperature cannot be set higher than the value in P1.	Set for **375**°F (range 50 to 525°F)
P3	Minimum temperature set point	This is the minimum temperature at which the oven can be set.	Set for **50**°F (range 50 to 200°F)
P4	Temperature offset	This value permits an offset or correction between the temperature probe and the real baking chamber temperature.	Default setting **0** (range ± 50)
P5	Heat OFF offset	This value adjusts the temperature difference between the set point and stopping the heating system.	Default setting **-2** (range ± 20)
P6	Heat difference hysteresis	This value adjusts the temperature difference between the on temperature and off temperature of the heating system.	Default setting **4** (range 0 to 20)
P7	Maximum steam time (in seconds)	Time set is the maximum time (in seconds) that water is supplied during the STEAM TIMER operation.	Set for **20** (range 0 to 30 max when P20 set for 0 = standard) 60 max when P20 set for 1 = restricted operator mode)
P8	°F or °C	The oven can be set to display temperature in Fahrenheit or Celsius.	°**F**
P9	Bake time mode 0= minutes, 1= hours & minutes	The BAKE TIMER cab be set up to display minutes set/minutes remaining or hours and minutes. Select 0 for minutes set/minutes remaining or 1 for hours and minutes.	Set for **0**
P10	Vent evacuate time (in seconds)	Time set is the time (in seconds) that the vent is 100% open at the beginning of the venting cycle.	Set for **90** (range 0 to 180)
P11	Vent open percentage	This value is the percentage the bake chamber vent is open after the vent evacuate time has expired.	Set for **15**% (range 5 to 100%)
P12	End of bake time auto vent enable 0= disable , 1= enable	This value enables the automatic vent cycle.	Set for **0**
P13	End of bake time auto vent (in minutes)	This is the number of minutes before the end of the bake cycle that the vent is open.	Set for **1** (range 0 to 99)
P14	Steam time in seconds or Food Service Mode Steam Interval 0= seconds, 300 to 900= Food Service Mode	Displays steam time in seconds or operation in Food Service Mode. The number of seconds set is the steam interval. See FOOD SERVICE STEAM MODE as outlined in this section.	Steam time in seconds = 0 Food service Mode (range 300 to 990 seconds)
P15	Interior light brightness	This value is the brightness of the interior lights. The higher the number, the brighter the lights.	Set for **90** (range 50 to 100)

CONTROLLER DEFAULT SETTINGS			
Timer Display	**Set-Up Item**	**Descriptions**	**Settings Shown In Temperature Display**
P16	Clock operation	This selects either 12 hour (AM/PM) or 24 hours real time display. Press the bake time UP button to switch between the two types of displays.	Set for **A P**= 12 hour AM/PM Set for **24** = 24 hour
P17	Temperature setback time (in minutes)	This selects the elapsed time from the last timed bake to when the oven will lower the oven set temperature to the value set in P18.	Set for **180** (range 10 to 180)
P18	Setback temperature	This selects the oven set temperature that the oven will change to when the temperature setback time has been exceeded in P17.	Set for **300**°F (range 50 to 300°F)
P19	Lights mode 0= auto operation 1= continuously ON	Select 1 for lights on continuously (when oven is on) or select 0 for automatic operation, lights will turn off automatically after 30 minutes of no user activity (door not opened or closed, no buttons pushed).	Set for **0**
P20	Restricted operator mode 0= Standard 1= Restricted Operation Mode	Select 1 for Restricted operator mode. When a program is selected by the operator the Bake Timer Minutes Set window will display the total bake time of all steps in the program. Standard operation only displays the minutes in the selected step. When a program is selected and the Start button is pressed the operator cannot make changes to the Bake Time remaining or the Oven Set Temp. If set for steam, steam is produced in 5 second on - 5 second off intervals for the time set in P7. The maximum solenoid on time range that can be set in P7 increases to 60 seconds. Change P7 to 60 when P20 is set for 1. When P20 is changed from 1= Restricted Operator Mode to 0= Standard Mode P7 must be changed below 30 (range 0 to 30 max) or solenoid will energize continuously for up to 60 seconds.	Set for **0** (when P20 is changed P7 setting must be changed to correspond with mode selection)
P21	Advanced Energy Saving Mode 0= Standard 1= Advanced Energy Saving Mode	Select 1 for Advance Energy Saving. Forcing the oven into an Advance Auto On - Auto Off Mode to conserve energy. Several steps are necessary to enable this mode. Set the Auto On Time to 60 minutes before the first bake time. Set the Auto Off Time. Press the Auto On / Auto Off button to illuminate the Timer On / Off indicator. Set P17 & P18 to customer settings. See Advanced Energy Saving Mode as outlined in this section.	Set for **0**
P22	OV210 Mode 0= Standard 1= OV210 Mode	Select 1 for installation of an HBA control panel and control door on an OV210. When enabled the OV210 will emulate all the functions of an HBA.	Set for **0**

CONTROLLER DEFAULT SETTINGS			
Timer Display	**Set-Up Item**	**Descriptions**	**Settings Shown In Temperature Display**
P23-P24	Unused		Set for **0**
P25	Communicate Mode 0= Direct Connect 1= NAFEM Protocol	Select 1 for NAFEM protocol compliant communication.	Set for **0**

NOTE: If P21 is set to 1 and control is programed for Auto On - Auto Off: oven will not start up in Off Time Mode unless a minimum of 30 minutes is entered into timer within 30 seconds of pressing On/Off keypad. After oven is started up and timer displays 00 for time and no keypads are pressed for the Set Back Time used inP17, the oven will then shut down.

NOTE: Before restarting oven, power switch and gas valve must be OFF for a minimum of 5 minutes.

5. Press On/Off to exit set-up mode.
6. Check for proper operation.

BAKERY MODE

The Bakery Mode is the default setting. The value for parameter P14 is **0** and displayed in the Bake Timer display. In Bakery Mode the controller will only initiate one steam cycle, for the set steam time.

FOOD SERVICE STEAM MODE

The food service steam mode has been updated to provide steam at intervals throughout a bake cycle. The length of the steam cycle and the interval between cycles can be set by the operator. Steam Timer Display will display the steam cycle length and the displayed cycle length will not count down while steaming.

1. To enable food service mode:
   A. Oven controller off.
   B. Press and hold the **Start** keypad while pressing the **Power On/Off** keypad for 3 seconds.
   C. Press the **Set Timer Arrows** to select parameter P14.
   D. Enable Food Service Steam Mode by pressing the **Bake Timer Up Arrow** until display changes to a three digit number.
   E. Set desired time (in seconds) between steam cycles by pressing the **Bake Timer Up/Down Arrows**. Range 300 to 990 seconds by increments of 10 seconds.

Example:

Parameter P14 set to 300

Steam Time set to 3

Steam cycle will initiate for 3 seconds after every 300 seconds

2. Press the **Power On/Off** keypad to save settings and exit Setup Mode.

OVEN TEMPERATURE SAFETY ALARM

NOTE: Standard feature, no parameter setup required.

If the temperature at the oven probe is between 570 to 600°F. for ten seconds, the controller will do the following:

- Shuts off all oven features.
- Sounds alarm and flashes the Oven Temp display.
- Display **SHdn** (shutdown) in the Bake Timer display.

NOTE: The oven will remain in Oven Temperature Safety Alarm Mode until the 120Volt supply power is turned off to the oven.

ADVANCED ENERGY SAVING MODE

The Advanced Energy Saving Mode is **NOT** the default setting. The default value for parameter P21 is **0**.

NOTE: When P21 is set to 1, Advanced Energy Saving Mode enabled, the Auto On/Off Time can only be changed in set up mode. To disable the Auto On/Off Time P21 must be set to 0, disabled.

The Advanced Energy Saving Mode automatically starts the oven at the preset time, sets the temperature to (P2) default of 375°F and the timer is set for 60 minutes and running. When the oven timer is timed out and no buttons are pushed on the controller for 15 minutes (P17), the Set Back Mode will be enabled. The oven will beep twice and the set temperature reduces to (P18 set at 250°F). If oven is in Set Back Mode set the bake temperature and timer for 12 minutes and press start to prepare the oven for baking. When buzzer sounds the oven is ready to load. The oven will shut down automatically at the preset time.

1. To enable the Advanced Energy Saving Mode.
    A. Oven controller off.
    B. Press and hold the **Start** keypad while pressing the **Power On/Off** keypad for 3 seconds.
    C. Press the **Set Timer Arrows** to select parameter P21.
    D. Enable Advanced Energy Saving Mode by pressing the **Bake Timer Up Arrow** to display 1.
    E. Press the **Set Timer Arrows** to select parameter P17. Set to 15 using **Bake Timer Up/Down Arrows**
    F. Press the **Set Timer Arrows** to select parameter P18. Set to 250 using **Bake Timer Up/Down Arrows**
    G. Press **Timer On/Off Keypad** so that the indicator light is illuminated.
    H. Consult with Bakery Manager for required start and end of bake time.
    I. Press and hold the **Auto On Time** keypad while pressing the **Up/Down Arrows** to set the Auto On Time 60 minutes prior to the requested start of bake time.
    J. Press and hold the **Auto Off Time** keypad while pressing the **Up/Down Arrows** to set the Auto Off Time to the requested end of bake time.
    K. Press the **Power On/Off** keypad to exit parameter set up mode.
2. Verify proper operation.
    A. When in Set Back Mode the damper should not open.

Advanced Energy Saving Mode Operation

1. Auto On Time will start the oven automatically at the set time chosen to a preset set temperature (P2) default 375°F
    A. Oven will not start up unless:
        1) Loading door is closed.
        2) Hood system is operating gas units only. Typical hood systems are wired to turn on automatically when oven powers on.
    B. Controller will set timer for 60 minutes and start timer.
    C. When timer times out showing 0:00 and buzzer sounds, the oven is ready to use. The operator may change the desired temperature or time.
2. Set Back Function, P17 & P18
    A. Set Back time P17 is set to 15 minutes.
        1) Time shows 0:00 and no other keypads are pushed for 15 minutes, controller will automatically set temperature to 250°F, P18. Oven will beep twice.
    B. Vent damper should remain closed while in Set Back Mode
    C. Exit Set Back Mode
        1) Set temperature to required bake temperature
        2) Set timer for 12:00 minutes. Press start.
        3) When buzzer sounds oven is ready for use.
3. Auto off Time shuts down the oven automatically at the preset time.
    A. If time is remaining on timer counting down, oven will not shut down.
    B. Once timer shows 0:00 the oven will shut down in 15 minutes, P17.
    C. Operator can start oven while in Auto off Time by pressing the **On/Off** keypad, set timer to a minimum of 30 minutes and press start keypad.
        1) Timer must be set and started within 30 seconds of pushing **On/Off** keypad.

NOTE: If timer is not started in 30 seconds oven will shut down immediately.

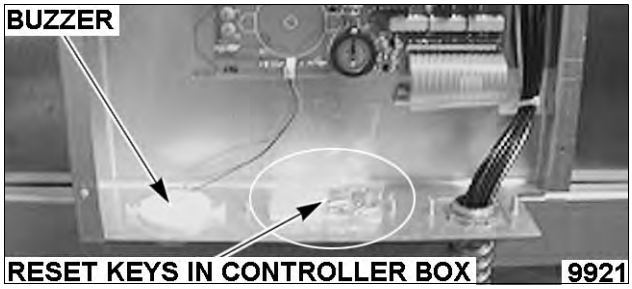
2) Oven will start as described in Auto On sequence.

3) Oven will operate normally until timer shows 0:00 and no keypads are pressed. Oven will shutdown in 15 minutes, P17.

KOSHER OPERATION MODE

The Kosher Mode can only be ordered from the factory and has a key operated manual reset. Kosher Lockout Mode automatically locks out controller (lock-out mode) if Kosher parameters are not maintained.

NOTE: Kosher Reset Keys are shipped with the oven, located inside the controller box, at bottom of box. Keys should be provided to facilities approved authority at oven start-up.



1. To enable Kosher Enable Mode:

   A. Oven controller off.

   B. Press and hold the **Airflow Delay Arrow** keypad while pressing the **Power On/Off** keypad for 3 seconds.

NOTE: A flashing **0** in the Bake Timer Display indicates controller is in the Bakery Mode (non Kosher Mode).

   C. Press the Bake Timer Up Arrow until display reads **1** (enabling Kosher Enable Mode).

   D. Press the Power On/Off keypad to exit.

2. Once oven temperature reaches 200°F. (93°C.). controller will enter Kosher Active Mode, and have the following operating characteristics:

   A. The minimum set temperature is 200°F. (93°C.).

   B. If the oven temperature falls below 170°F. (77°C.). an alarm will sound (fast pulse rate).

NOTE: Alarm will silence if oven temperature recovers back to 170°F. (77°C.).

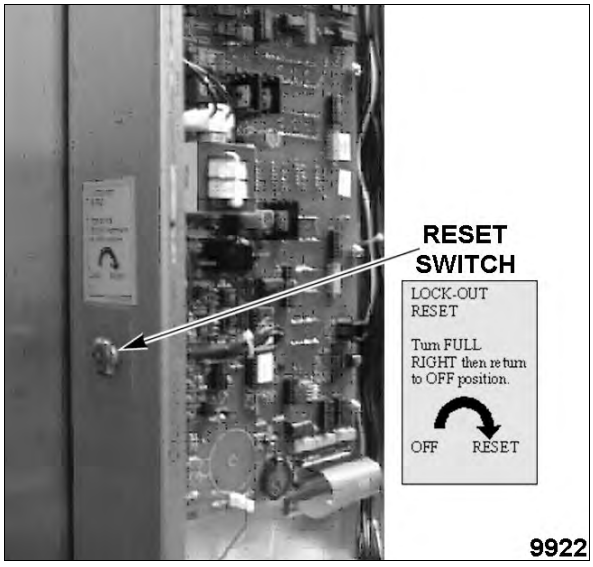
   C. If the oven temperature falls below 150°F. the alarm will silence and controller will go into Kosher Lock-Out Mode, controller display will read **LOC OUT**.

NOTE: In Kosher Lock-Out Mode controller locks out all controller operations and will need to be reset. Obtain reset key from the facility's approval authority.

3. To reset a Kosher Lock-Out Mode:

   A. Use the reset key and turn the reset switch full right to the Reset position then back to the off position.

NOTE: Resetting the switch will put the controller back into the Kosher Enable Mode. Once oven temperature reaches 200°F. (93°C.) controller will enter Kosher Active Mode.



   B. Verify the Bake Timer Display reads **1** (flashing). If not, press the Bake Timer Arrows until display reads **1** (flashing).

   C. Press the Power On/Off keypad entering the Kosher Active Mode.

NOTE: The controller will call for heat in the Kosher Active Mode and maintain the minimum Kosher temperature 200°F. (93°C.).

4. To disable Kosher Operation Mode - Bakery Mode:

   A. Oven controller off.

   B. Press and hold the **Airflow Delay Arrow** keypad while pressing the **Power On/Off** keypad for 3 seconds.

   C. Press the Bake Timer Arrows until Bake Timer Display reads **0**.

   D. Press the Power On/Off keypad, oven in Bakery Mode (standard operation).

BURNER ADJUSTMENTS

MANIFOLD PRESSURE ADJUSTMENT

⚠ WARNING Shut off the gas before servicing the unit.

NOTE: Verify the type of gas required is the type of gas supplied.

1. Attach a manometer to 1/8" NPT inlet pressure tap on gas valve.
2. Turn gas supply on to oven and verify that static supply line pressure to oven does not exceed 14" W.C. (1/2 psig, 35.6 cm W.C., 3.5 kPa) for either natural gas or propane. If supply line pressure exceeds 14" W.C. (1/2 psig, 35.6 cm W.C., 3.5 kPa), adjust pressure regulator. If no pressure regulator, customer must supply and install a line pressure regulator. Adjust as needed.
3. Turn gas off at supply valve.
4. Move manometer to 1/8" NPT outlet pressure tap on gas valve.
5. Turn gas on at supply valve.
6. Turn gas valve on and set controller to call for heat.
7. With a burner flame established, adjust the manifold pressure as indicated in the following charts or as indicated on the oven data plate.

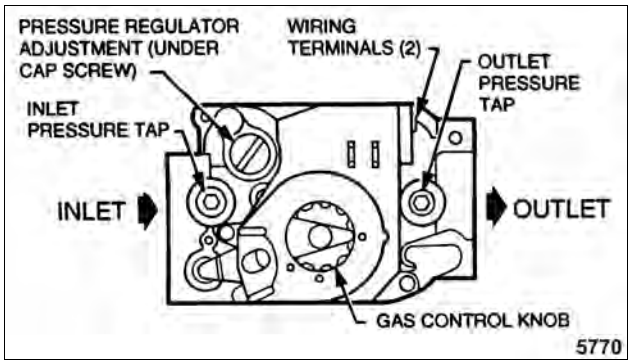
NOTE: Accurate gas pressure adjustment can only be made with the burner on.

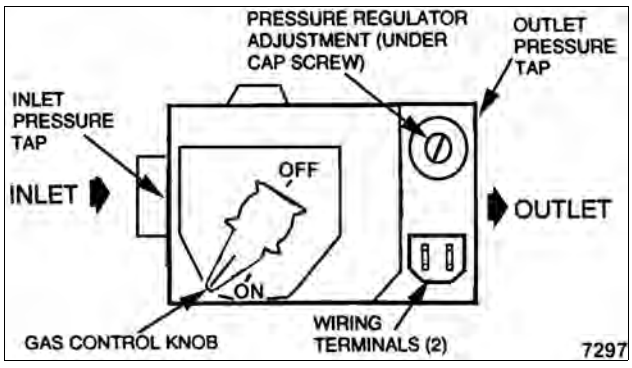
NOTE: Turn adjustment screw Clockwise to increase the pressure, Counterclockwise to decrease pressure.

HBA1G & BXA1G MANIFOLD PRESSURE		
	NATURAL GAS	**PROPANE GAS**
BTU/HR	Nat. Gas 180,000	Propane Gas 180,000
W.C.	3.5" W.C.	10.0" W.C.
kCAL/HR	45,400	45,400
cm W.C.	8.89	25.40
Mj/HR	190	190
kPa	0.87	2.49

HBA2G & BXA2G MANIFOLD PRESSURE				
	NATURAL GAS		**PROPANE GAS**	
	300,000 BTU/HR	350,000 BTU/HR	300,000 BTU/HR	350,000 BTU/HR
W.C.	3.0"	4.0"	8.0"	10.0"
kCAL/HR	75,600	88,200	75,600	88,200
cm W.C.	7.61	10.15	20.32	25.40
Mj/HR	317	370	317	370
kPa	0.75	1.00	2.00	2.49

NOTE: The following diagrams represent two typical styles of combination valves. The valve you are servicing may not match the diagrams.





NOTE: The following chart is for reference only. If the manifold pressure must be adjusted to accommodate the altitude you must contact Bakery Product Support for a corrected data plate.

ALTITUDE CORRECTION CHART								
ELEVATION IN FT.	**HBA1G / BXA1G**		**HBA1G / BXA1G**		**HBA2G / BXA2G**		**HBA2G / BXA2G**	
	Natural Gas		**Propane Gas**		**Natural Gas**		**Propane Gas**	
	Orifice #53 Orifice Dia. 0.0595		**Orifice #63 Orifice Dia. 0.037**		**Orifice #49 Orifice Dia. 0.073**		**Orifice #56 Orifice Dia. 0.046**	
	Oven Rating BTU/Hr	Manifold Pressure "W.C.	Oven Rating BTU/Hr	Manifold Pressure "W.C.	Oven Rating BTU/Hr	Manifold Pressure "W.C.	Oven Rating BTU/Hr	Manifold Pressure "W.C.
0 (sea level)	180,000	3.5	180,000	10.0	300,000	3.0	300,000	8.0
3000	158,400	2.7	158,400	7.7	300,000	3.0	300,000	8.0
3500	154,800	2.6	154,800	7.3	300,000	3.0	300,000	8.0
4000	151,200	2.4	151,200	7.0	294,000	2.7	294,000	7.4
4500	147,600	2.3	147,600	6.7	287,000	2.6	287,000	7.1
5000	144,000	2.2	144,000	6.4	280,000	2.5	280,000	6.7
5500	140,400	2.1	140,400	6.0	273,000	2.4	273,000	6.4
6000	136,800	2.0	136,800	5.7	266,000	2.2	266,000	6.1
ORIFICE DIA. MUST CHANGE 6500 FT. ABOVE SEA LEVEL								
	Orifice #55 Orifice Dia. 0.052		**Orifice #66 Orifice Dia. 0.033**		**Orifice #52 Orifice Dia. 0.0635**		**Orifice #60 Orifice Dia. 0.04**	
6500	133,200	3.2	133,200	8.6	259,000	3.7	259,000	10.1
7000	129,600	3.1	129,600	8.1	252,000	3.5	252,000	9.5
7500	126,000	2.9	126,000	7.7	245,000	3.3	245,000	9.0
8000	122,400	2.7	122,400	7.3	238,000	3.1	238,000	8.5
8500	118,800	2.6	118,800	6.8	231,000	2.9	231,000	8.0
9000	115,200	2.4	115,200	6.4	224,000	2.8	224,000	7.5
9500	111,600	2.3	111,600	6.0	217,000	2.6	217,000	7.1
10,000	108,000	2.1	108,000	5.7	210,000	2.4	210,000	6.6

8. Turn gas valve off and disconnect manometer.

9. If manifold pressure was unattainable, light burner and all other gas equipment on the supply line and check gas supply line flow pressure.

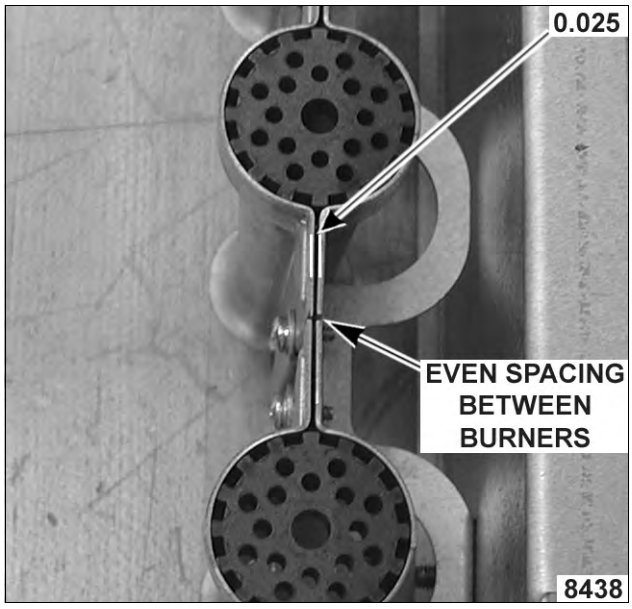
HBA1G & BXA1G GAS SUPPLY LINE FLOW PRESSURE		
	NATURAL GAS	**PROPANE GAS**
BTU/HR	180,000	180,000
W.C.	5.0" - 14.0"	12.0" - 14.0"
kCAL/HR	45,400	45,400
cm W.C.	12.7 - 25.4	30.5 - 35.6
Mj/HR	190	190
kPa	1.25 - 2.50	3.00 - 3.50

HBA2G & BXA2G GAS SUPPLY LINE FLOW PRESSURE				
	NATURAL GAS		**PROPANE GAS**	
BTU/HR	300,000	350,000	300,000	350,000
W.C.	5.0 - 14.0"	6.0 - 14.0"	10.0" - 14.0"	12.0 - 14.0"
kCAL/HR	75,600	88,200	75,600	88,200
cm W.C.	12.7 - 35.6	15.3 - 35.6	30.5 - 35.6	30.5 - 35.6
Mj/HR	317	370	317	370
kPa	1.25 - 3.50	1.50 - 3.50	2.50 - 3.50	3.00 - 3.50

10. Turn gas on, set controller to call for heat and check operation of oven.

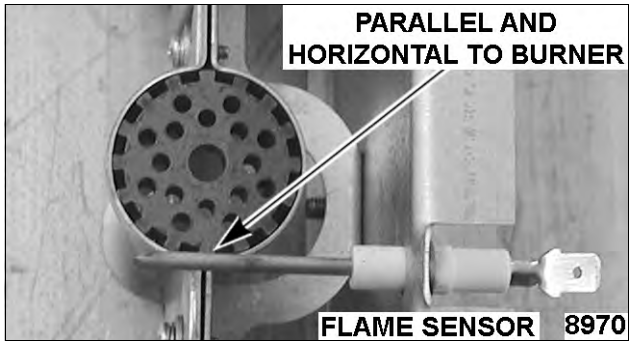
CROSS OVER TUBE ADJUSTMENT

1. Remove gas manifold as outlined under GAS MANIFOLD / ORIFICES.
2. Remove burner rack enclosure - front panel.
3. Remove screw securing hot surface ignitor to burner side rack assembly, and pull ignitor out.
4. Disconnect flame sensor lead wire.
5. Remove burner side rack and end shot burner assembly.
6. Make sure burners are evenly spaced.
7. Check for .025" spacing in cross over tube.



FLAME SENSE LOCATION

1. Flame sensor is located at the bottom of the burner assembly.
2. Flame sensor is positioned at the lower edge of the last end shot burner.
3. Flame sensor should be parallel to the face of the burner and horizontal to the lower edge.

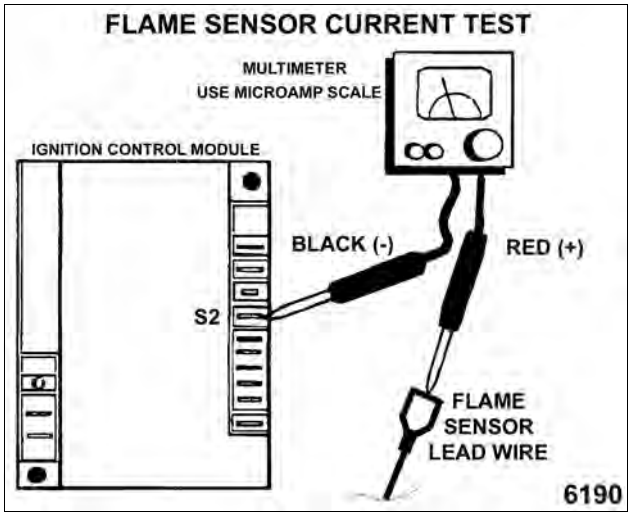


FLAME SENSE CURRENT TEST

Flame sense current is rectified through the flame from ground to sensor. A minimum flame sense current is necessary to keep ignition system from lockout.

1. Disconnect flame sensor wire from ignition control module at S2 terminal.
2. Connect multi meter black lead to terminal S2 on the ignition control module and red lead to flame sensor lead wire.

NOTE: Flame sense current can also be checked at flame sensor wire connection.



3. Turn oven power on and set controller to call for heat.
4. Meter reading should be a steady **1.0** microamps or higher. If not, troubleshoot flame sense circuit.

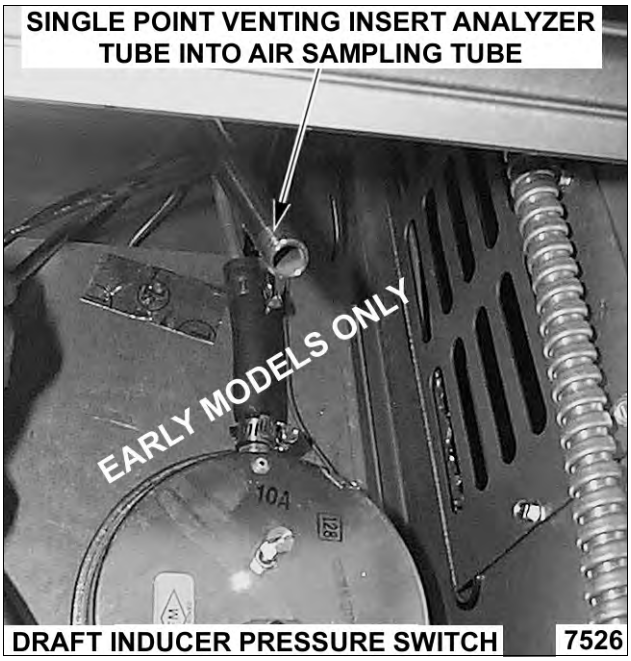
NOTE: If reading is below **0** microamps reverse meter leads and take another reading.

COMBUSTION ANALYSIS

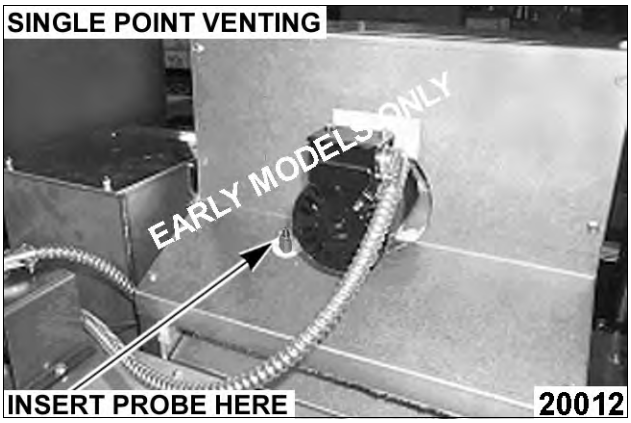
1. Verify the manifold pressure as outlined under BURNER ADJUSTMENTS.
2. Insert combustion analyzer meter 8" into air sampling tube at 300°F. for combustion tests.

NOTE: For early single-point venting only, air sampling tube is inside control compartment. To ensure an airtight seal around analyzer tube use a perm-gum grommet for an accurate O_2 and CO readings.

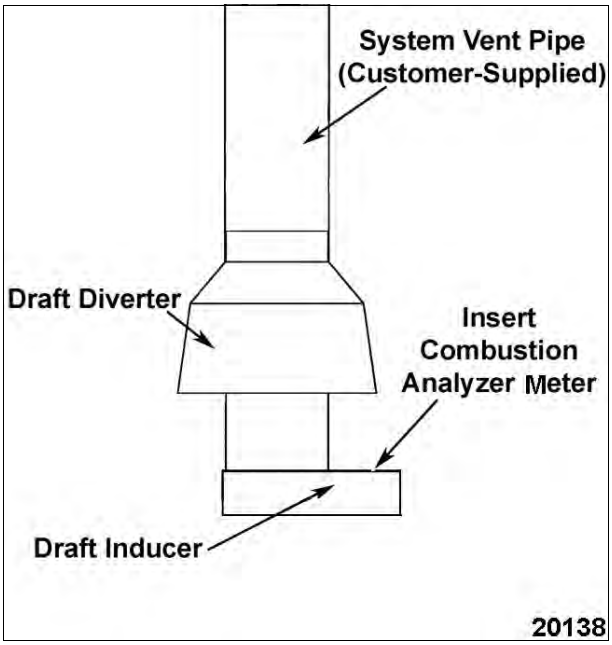
HBA2G & BXA2G OVEN



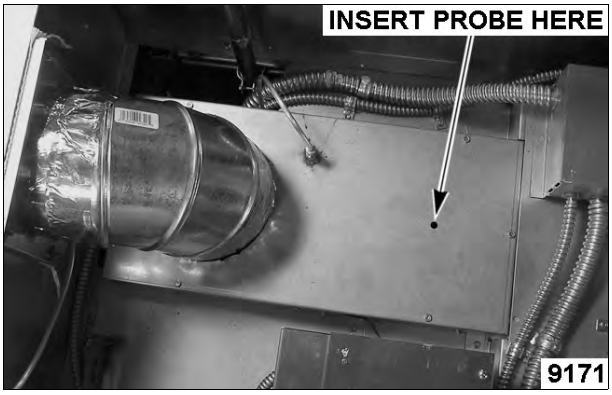
HBA2G & BXA2G OVEN



DUAL POINT VENTING



SINGLE POINT VENTING



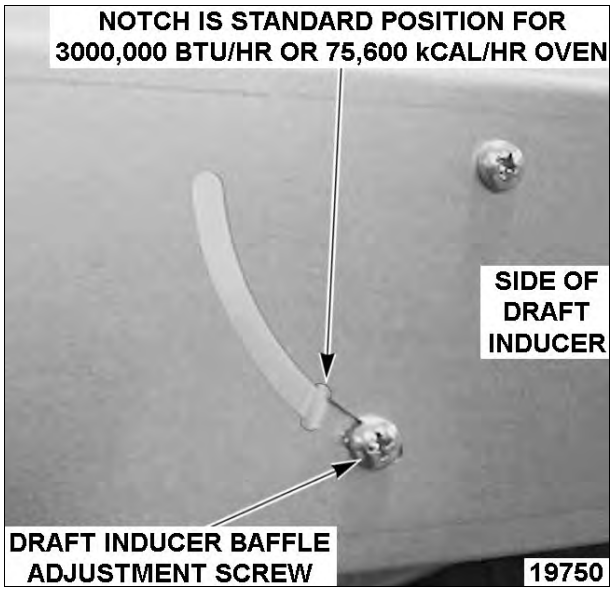
3. With a burner flame established, take combustion measurements O_2 and CO readings.

O_2: (Range 6% to 10%)

CO: Not to exceed 0.04% (400PPM)

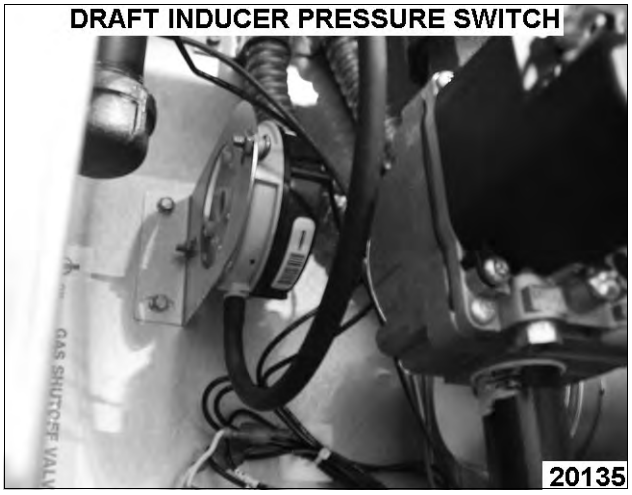
   A. If readings can not be obtained, adjust the draft inducer baffle and retest for combustion.

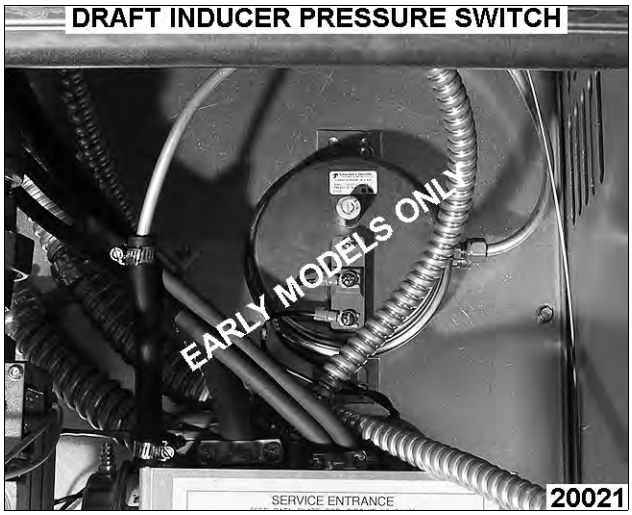
NOTE: If combustion readings still can not be obtained, contact Bakery Support.

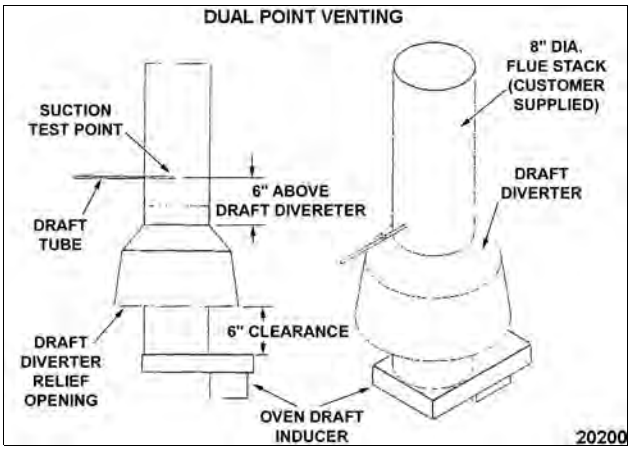


DRAFT INDUCER TEST

1. Access the component panel area for single point venting and for dual point venting access draft diverter above oven.
2. Single point venting connect incline manometer or equivalent to draft inducer pressure switch. For dual point venting insert incline manometer tube 6" above draft diverter.







3. There should be a vacuum reading of:

HBA1G / BXA1G			
Vertical Draft Motor	Oven Temp	MANUFACTURED PRE - JULY 2005	
		Natural Gas (minimum readings)	Propane (minimum readings)
	Cold	-0.22 "W.C. -5.6 mm W.C. -0.06 kPa	-0.22 "W.C. -5.6 mm W.C. -0.06 kPa
	400°F. 204.4°C.	-0.16 "W.C. -4.1 mm W.C. -0.04 kPa	-0.16 "W.C. -4.1 mm W.C. -0.04 kPa
	Oven Temp	MANUFACTURED JULY 2005 - PRESENT	
		Natural Gas (minimum readings)	Propane (minimum readings)
	Cold	-0.46 "W.C. -11.7 mm W.C. -0.11 kPa	-0.46 "W.C. -11.7 mm W.C. -0.11 kPa
	400°F. 204.4°C.	-0.32 "W.C. -8.13 mm W.C. -0.08 kPa	-0.32 "W.C. -8.13 mm W.C. -0.08 kPa

HBA2G / BXA2G					
Horizontal Draft Motor	Oven Temp	MANUFACTURED PRE - MARCH 2005			
		Natural Gas (minimum readings)		Propane (minimum readings)	
	Cold	Min -0.20 "W.C. -5.1 mm W.C. -0.05 kPa		Min -0.20 "W.C. -5.1 mm W.C. -0.05 kPa	
	400°F. 204.4° C.	Min - 0.14 "W.C. -3.6mm W.C. -0.04 kPa		Min -0.14 "W.C. -3.6 mm W.C. -0.04 kPa	
Vertical Draft Motor	Oven Temp	MANUFACTURED MARCH 2005 - MARCH 2007			
		Natural Gas (minimum readings)		Propane (minimum readings)	
		300k Btu/h 75,600 kCAL/HR 317 Mj/HR	350k Btu/h 88,200 kCAL/HR 370 Mj/HR	300k Btu/h 75,600 kCAL/HR 317 Mj/HR	350k Btu/h 88,200 kCAL/HR 370 Mj/HR
	Cold	-0.40 "W.C. -10.2 mm W.C. -0.10 kPa	-0.35 "W.C. -8.9 mm W.C. -0.09 kPa	-0.40 "W.C. -10.2 mm W.C. -0.10 kPa	-0.35 "W.C. -8.9 mm W.C. -0.09 kPa
	400°F. 204.4° C.	Min. -0.30 "W.C. -7.6 mm W.C. -0.07 kPa	Min. -0.23 "W.C. -5.8 mm W.C. -0.06 kPa	Min. -0.30 "W.C. -7.6 mm W.C. -0.07 kPa	Min. -0.23 "W.C. -5.8 mm W.C. -0.06 kPa
	Oven Temp	MANUFACTURED MARCH 2007 - CURRENT			
		Natural Gas		Propane	
		300k Btu/h 75,600 kCAL/HR 317 Mj/HR	350k Btu/h 88,200 kCAL/HR 370 Mj/HR	300k Btu/h 75,600 kCAL/HR 317 Mj/HR	350k Btu/h 88,200 kCAL/HR 370 Mj/HR
	Cold	Min. -0.43 "W.C. -10.9 mm W.C. -0.11 kPa	Min. -0.36 "W.C. -9.1 mm W.C. -0.09 kPa	Min. -0.43 "W.C. -10.9 mm W.C. -0.11 kPa	Min. -0.36 "W.C. -9.1 mm W.C. -0.09 kPa
	400°F. 204.4° C.	Min. -0.31 "W.C. -7.9 mm W.C. -0.08 kPa	Min. -0.23 "W.C. -5.8 mm W.C. -0.06 kPa	Min. -0.31 "W.C. -7.9 mm W.C. -0.08 kPa	Min. -0.23 "W.C. -5.8 mm W.C. -0.06 kPa

HBA1G / BXA1G DUAL POINT VENTING	
Cold / 400°F. / 204.4°C.	-0.15" W.C. -3.8 mm W.C. -0.04 kPa

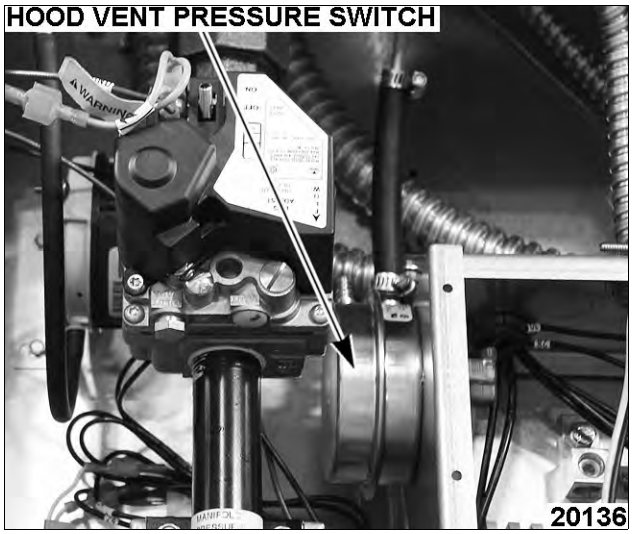
4. If minimum reading is not obtained, check the draft inducer motor and fan.

HOOD VENT DRAFT PRESSURE TEST

1. Access the component panel area.
2. Verify operation of roof mounted ventilator.

NOTE: Verify plenum or grease filters installed.

A. Remove vacuum line near hood exhaust pressure switch and connect incline manometer or equivalent.



1) Single & Duel point venting ovens minimum reading should be:

RACK OVEN	STANDARD HOOD	GREASE HOOD
HBA1G & BXA1G	-0.4" W.C. -10.2 mm W.C. -0.10 kPa	-0.6" W.C. -15.2 mm W.C. -0.15 kPa
HBA2G & BXA2G	-0.4" W.C. -10.2 mm W.C. -0.10 kPa	-0.6" W.C. -15.2 mm W.C. -0.15 kPa

NOTE: Standard hood reading of -0.3" W.C., -7.6 mm W.C., or -0.8 kPa is acceptable if air volume is verified as noted in specifications.

B. Disconnect manometer and reconnect vacuum line onto hood exhaust pressure switch.

NOTE: If vacuum requirements are not met, the customer supplied hood vent stack must be modified to meet the above stated requirements and tested until minimum vacuum is met.

3. If draft diverter is installed (dual point venting), continue.

A. Operate the oven for a minimum of 5 minutes.

B. While burner is lit, check for a back draft at the draft diverter relief opening (i.e. smoke emitted from a smoldering source).

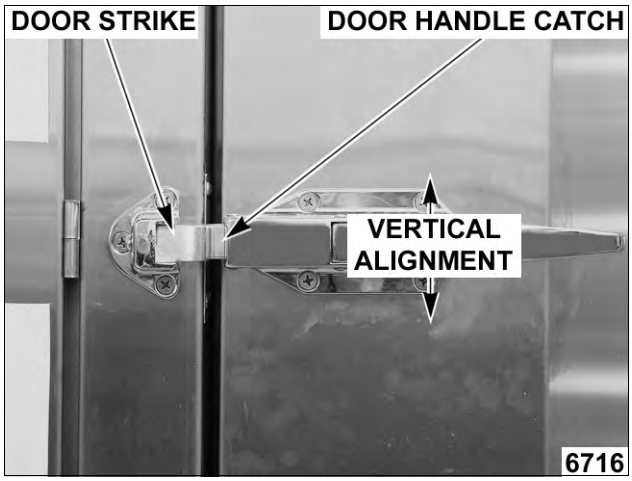
C. If **no** back draft indicated (smoke going up draft diverter relief opening) test is complete.

D. If back draft indicated (smoke **not** going up draft diverter relief opening) the oven must **not** be operated, until proper adjustments have been made (correct flue stack to have adequate up draft through the draft diverter relief opening).

DOOR ADJUSTMENT

Check

1. With the door in the closed position, visually check door strike to door handle catch vertical alignment.
2. With the door closed, visually check gap around door jamb and edge of door.



3. Catch and strike should be vertically aligned within 3/16" of each other and gap should be equal on al sides and top.

NOTE: Obtaining the handle to strike is more important than an equal gap. However, if the door rubs against the jamb or drags the facility floor when opening, call Bakery Service Support.

NOTE: Door handle adjustment can assist in obtaining the handle to strike vertical alignment.

NOTE: Only rack ovens with wide view window in the loading door will have the adjustable door hinges.

Adjustment - Early Models Only

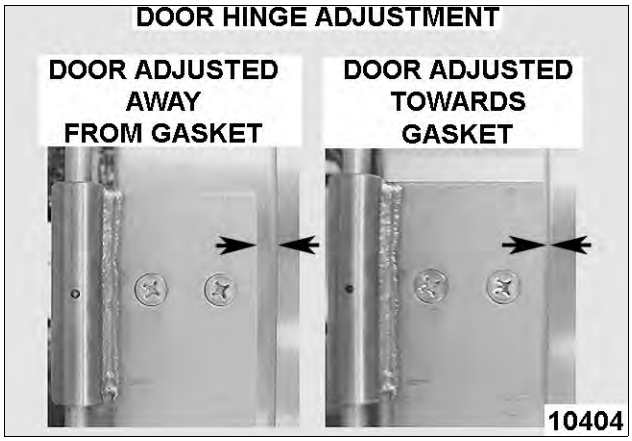
The only way to adjust the door is to move the door jambs. Unfortunately, new hole locations in bakery floor may be too close to existing holes and make it impossible to drill new holes and adjust door.

NOTE: You may get some movement by adjusting the leveling bolts.

Adjustment

1. Adjust door hinge inward or outward until door has an air tight seal against door gasket.

NOTE: Remove a door handle spacer if catch is too tight to release from strike. If door gasket does not seal, up to 2 spacer can be added. If spacers used then ensure interior door handle assembly functions properly.



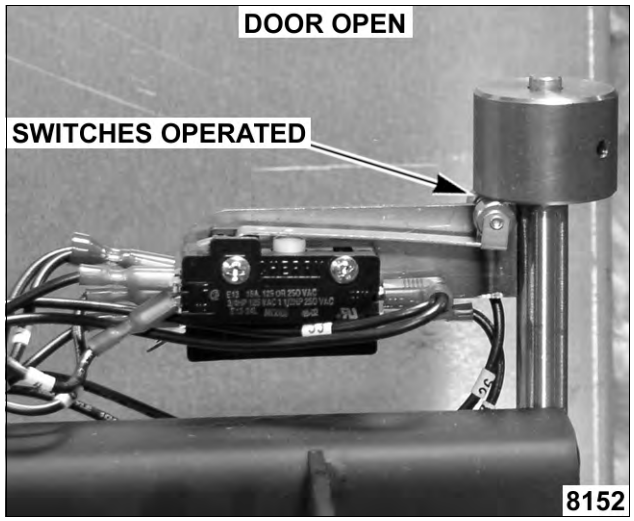
DOOR SWITCH ADJUSTMENT

Check

1. With door closed, door switches are not operated.
2. When door is unlatched and opened approximately 3 inches at handle side, burner should not light and rack should stop in load/unload position and lower.
3. When closing door, door switch actuator must mate with actuator guide on top of door. This will raise collar and door switches will return to un-operated positions.

Adjustment

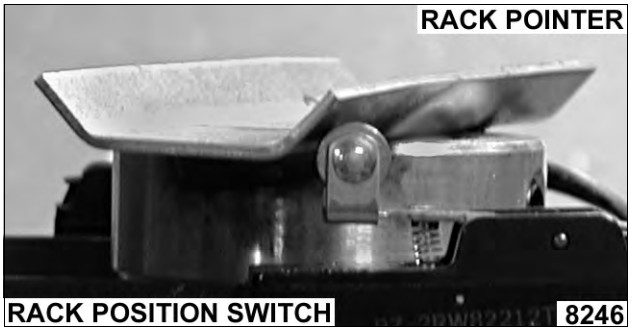
1. Close oven door. Bottom of door switch rod should mate with rod guide on top of door to raise door switch actuator.
2. Access door switches on top of oven.
3. With oven door closed, door switch collar should not operate door switches.
4. Loosen the door collar set screw and move the collar upward, until door switches are not operated.
5. Tighten collar set screw.



6. Open oven door.
7. Plunger should operate switches before handle side of door is opened more than 3 inches.
8. Check for proper operation.

RACK POSITION SWITCH ADJUSTMENT

1. Position carrier in product load/unload position.
2. Access the rack position switches at top of oven.
3. Loosen rack position switch screws.
4. Adjust switches up or down so wheel of actuator arm will contact rack pointer in middle of ramp just prior to the load/unload position and will operate switch when flat spot of pointer is contacted.



5. Tighten screws.
6. Check for proper operation.

RACK POSITION ADJUSTMENT

1. Operate oven so that when door is opened rack will attempt to stop in load/unload position.
2. If rack has not stopped in load/unload position, adjust.

NOTE: Do not allow rotator shaft to move.

A. Access the set screws that secure the rack carrier.

B. Loosen set screws (4) that secure rack carrier.

C. Move carrier to load/unload position.

D. Tighten set screws.

3. Check for proper operation; rack centered in home position with door opening.

RACK HEIGHT ADJUSTMENT

Check

1. With door open and rack carrier centered in door opening, rack should be pushed onto rack carrier without forcing or lifting wheels from oven floor or forcing the rack downward.
2. With door closed and rack carrier raised and turning, the wheels should clear oven floor.

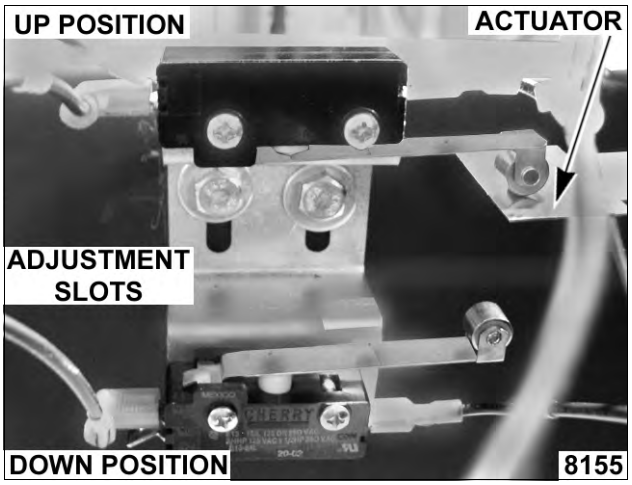
Adjustment (Except "C" Channel Type Rack)

1. Access rack position switches on top of oven.
2. Make sure switch actuator is bent at 90° and is between rack height switches.
3. Loosen the screws securing lift switch bracket.

   A. If rack wheels are not touching the floor in loading/unloading position, lower bracket.

   B. If rack wheels are touching the floor in bake position, raise the bracket.

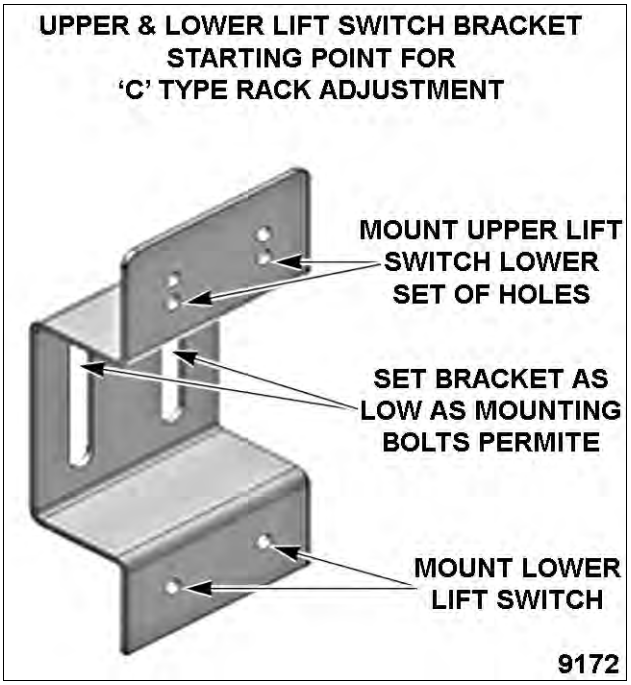
NOTE: Product rack should load onto carrier without resistance and should rotate with the wheels off oven floor.



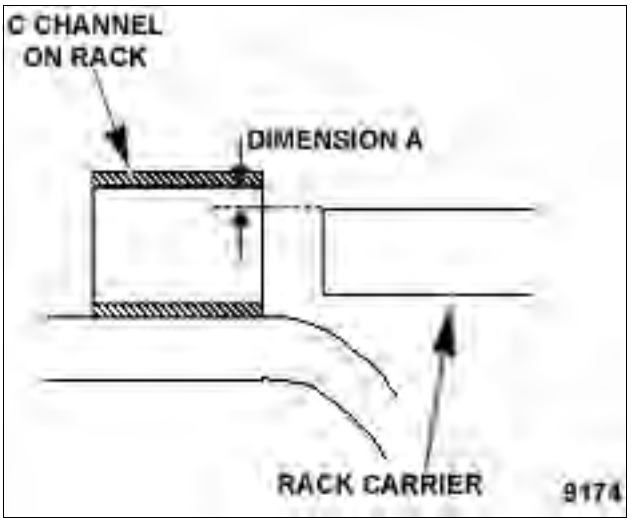
4. Tighten the lift switches bracket screws.
5. Check for proper operation.

Adjustment for "C" Channel Type Rack

NOTE: Locate customer's shortest and tallest 'C' type racks.



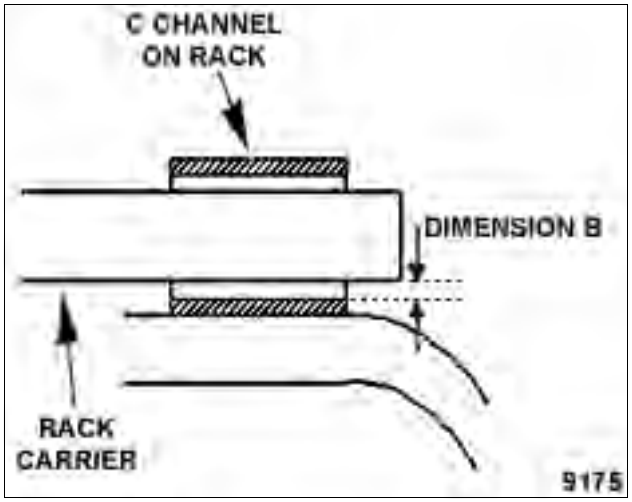
1. With door open and rack carrier centered in door opening, push shortest rack up to the front of the rack carrier.
2. Verify distance between the underside of upper section of rack's 'C' channel and top surface of the rack carrier (Dimension A).



   A. If dimension A is outside of 0.200" to 0.375", access rack position switches on top of oven.

   B. Loosen bolts securing upper & lower lift switch bracket and move bracket up and recheck dimension A.

3. Move shortest rack out of the way.
4. Move tallest rack to rear of rack carrier.
5. Check distance between the top surface of lower section of rack's 'C' channel and bottom surface of the rack carrier (Dimension B).



A. If dimension B is less than dimension A, adjust upper & lower lift switch bracket until dimension A is less than dimension B.

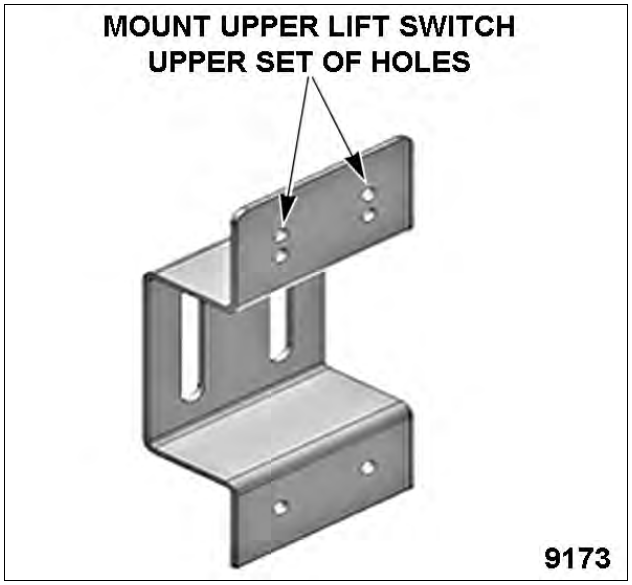
NOTE: If dimension B exceeds 0.400" than adjust upper & lower switch bracket up to have clearance at dimension A.

6. Load rack(s) onto rack carrier, close door, and allow rack carrier to lift and rotate.

NOTE: HBA2G & BXA2G oven use 1 double or 2 single racks. If using single racks, use the shortest and tallest together.

A. Verify that rack(s) wheels (when at the rear location of the baking compartment) do not drag on the oven floor.

B. If wheels drag, move upper lift switch to the top holes in upper & lower lift switch bracket.

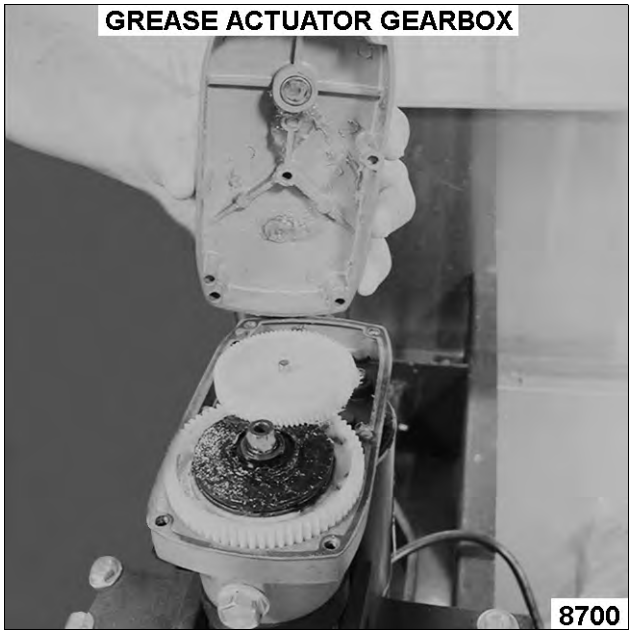


C. Test with oven at desired operating temperature for 15 minutes.

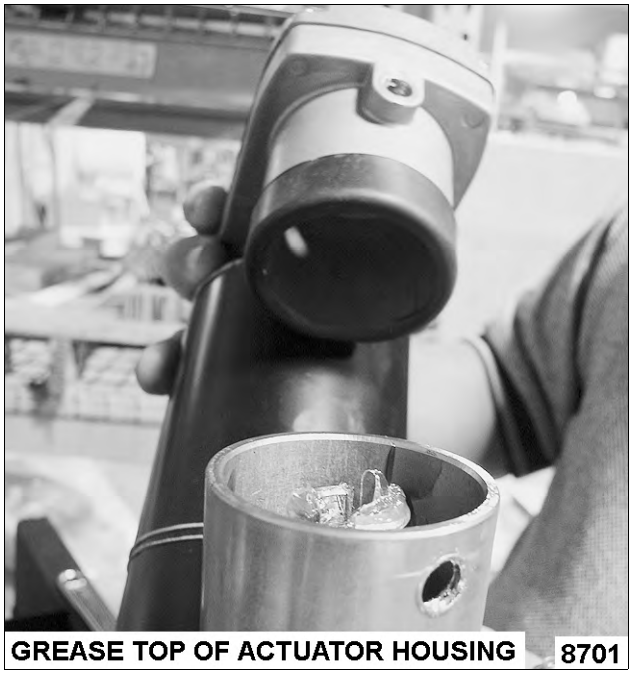
D. If wheels drag, then oven floor or racks do not meet manufactured specifications.

ACTUATOR LUBRICATION

1. Access actuator on top of oven.
2. There are two places to apply high temperature grease.
   A. Remove actuator housing cover.
      1) Apply high temperature grease in actuator gear box.

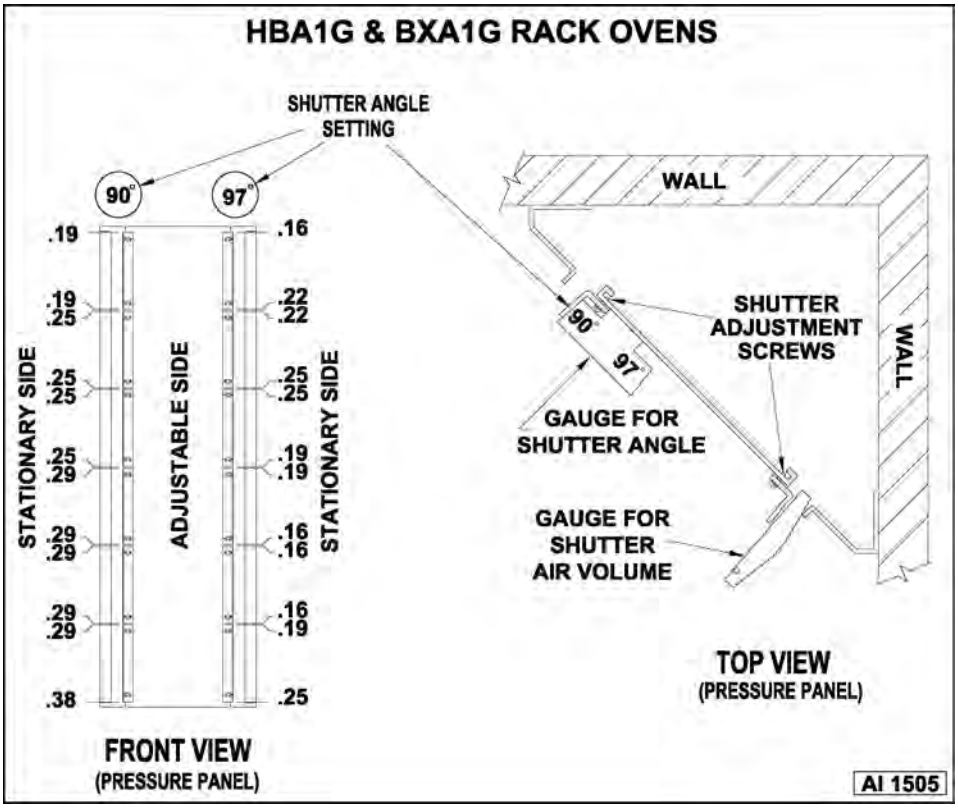


      2) Install actuator housing cover.
   B. Remove motor and gearbox assembly from actuator.
      1) Apply high temperature grease in top of actuator housing.

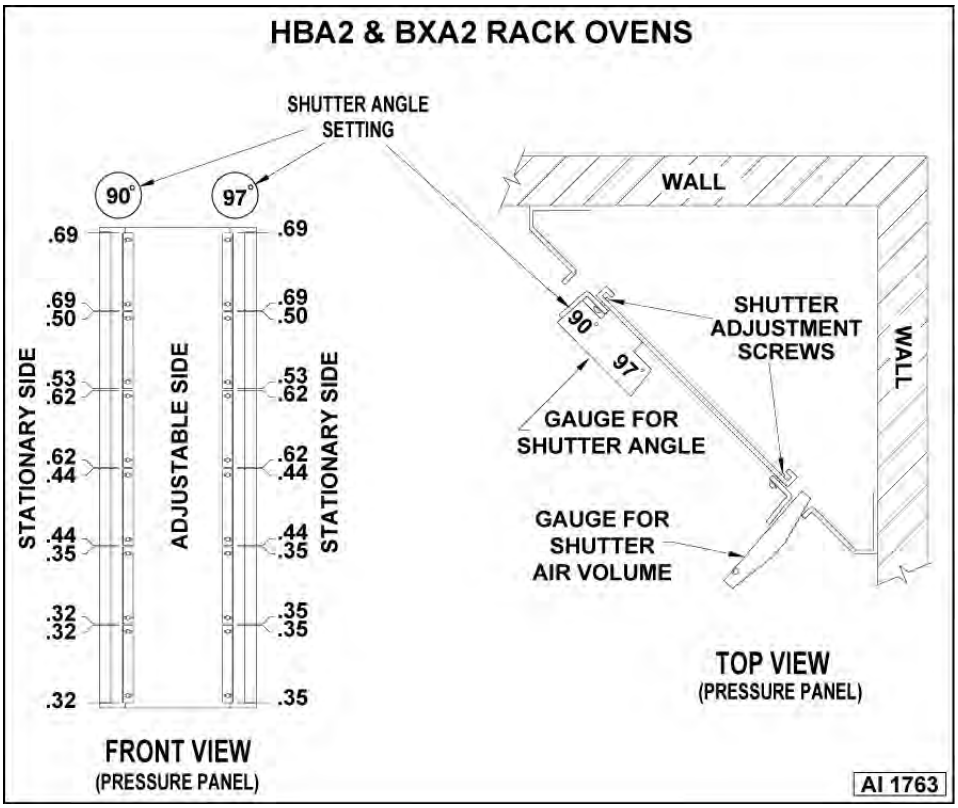


      2) Install motor and gearbox assembly.
3. Check for proper operation.

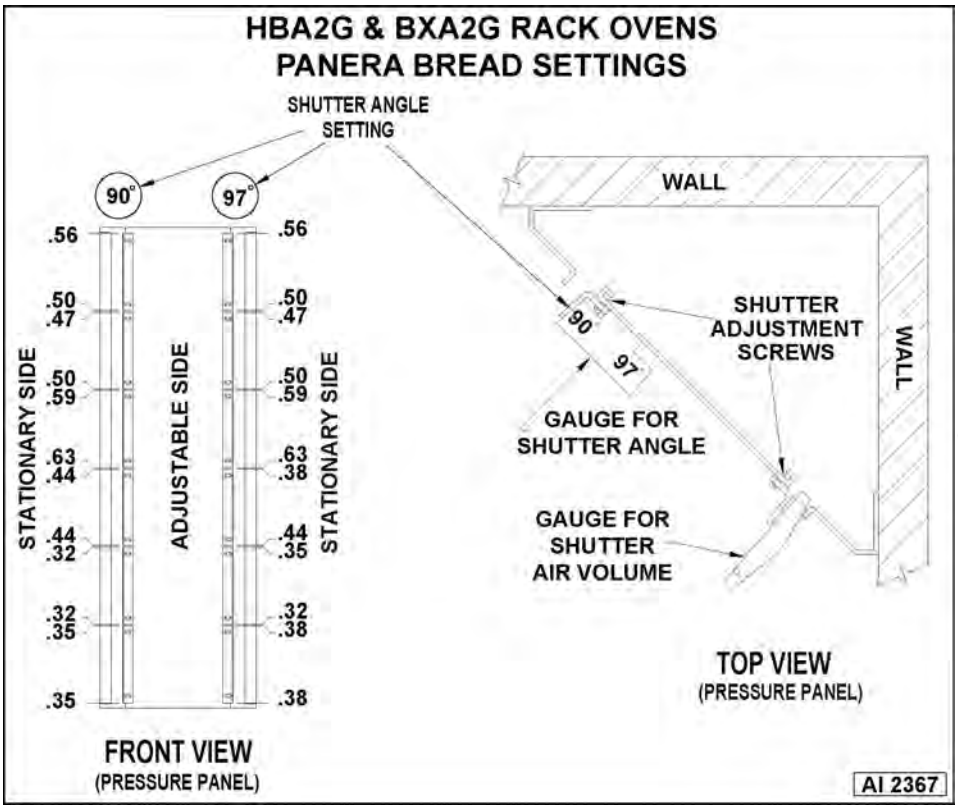
AIR AND ANGLE SHUTTER ADJUSTMENTS



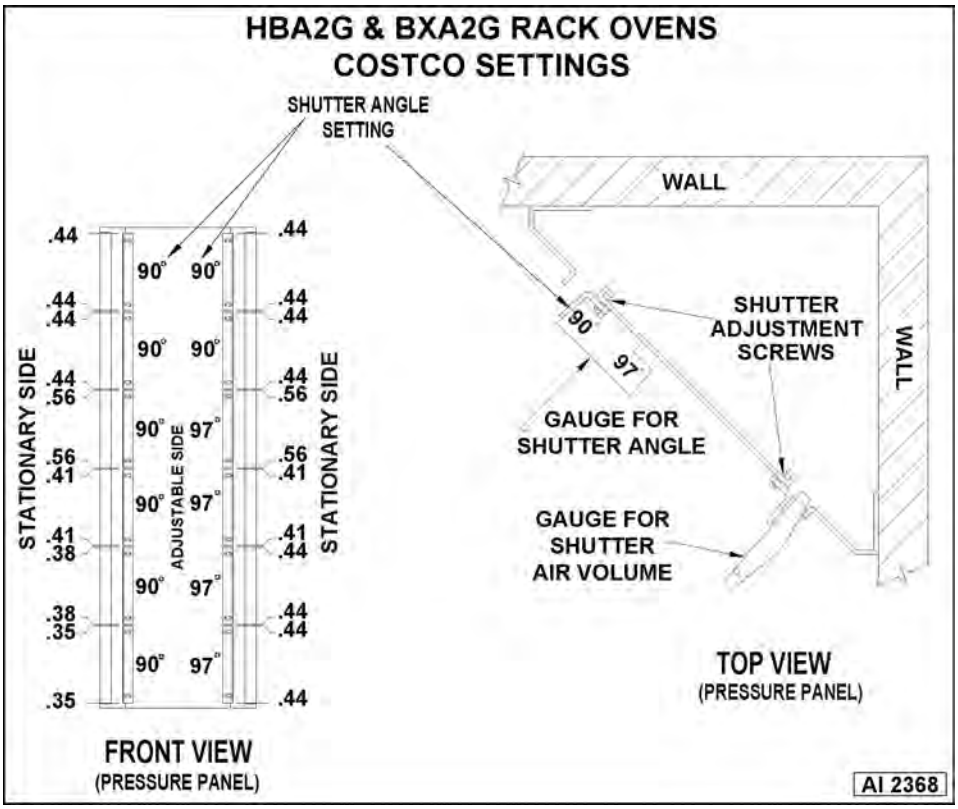
FACTORY SETTINGS
STANDARD OVENS



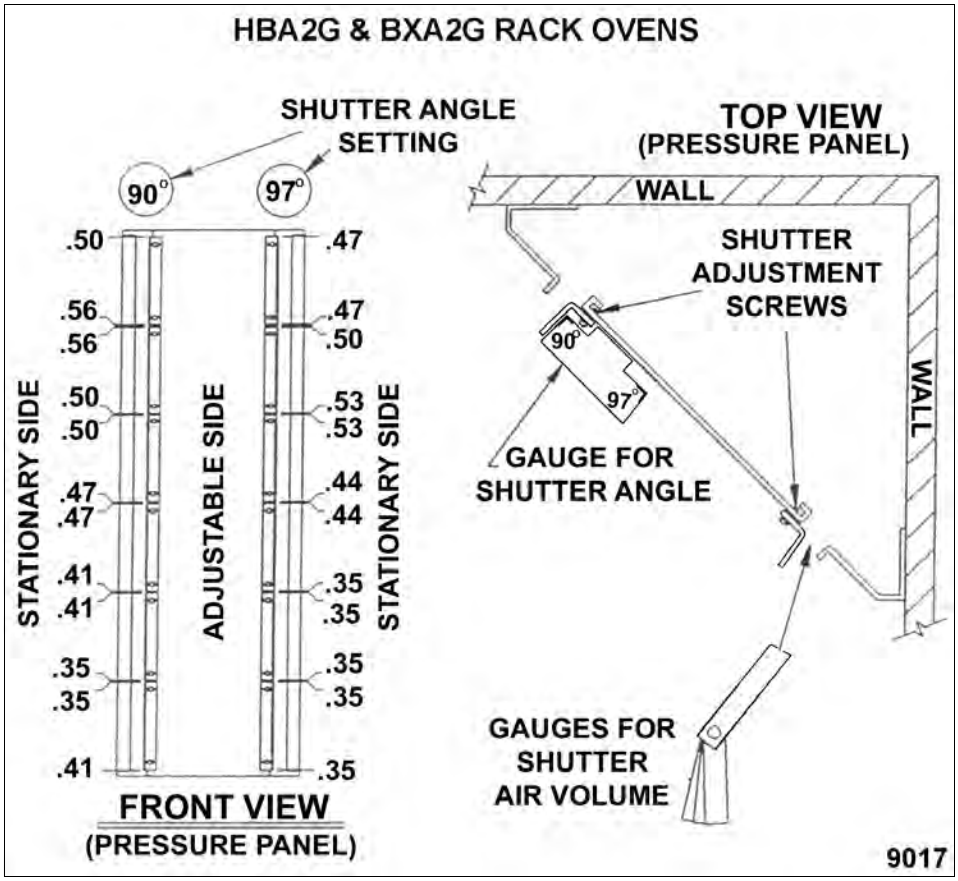
FACTORY SETTINGS
ON OVENS BUILT AFTER
SEPTEMBER 6TH 2005



FACTORY SETTINGS ON PANERA BREAD OVENS ONLY



FACTORY SETTING ON COSTCO OVENS ONLY



FACTORY SETTINGS ON OVENS BUILT BEFORE SEPTEMBER 6th 2005

General Information

1. Factory settings are used for a starting point on a new oven. Once an oven has been started up and has baked satisfactorily, there is no need to return to factory settings.
2. The illustrations show factory settings for air volume and shutter angles. These settings will be applicable for most situations. If these settings are adjusted, record the settings and place in the control panel area for reference.
3. The shutters are the short L shaped panels of stainless steel located on the right rear corner panel of the bake chamber. There are 12 shutters per oven, consisting of 24 adjustable air volume settings and 12 adjustable angle settings.
4. Air volume adjustments modifies the heat from top to bottom of rack(s).
5. Shutter angle adjustments direct the heat to side or center of rack(s).
6. Oven pressure panel feeler gauge Part No. 01-1M5561-1 (for previous ovens settings) does not supercede to oven pressure panel feeler gauge 01-1M5689-1. Do not discard feeler gauges.

Evaluating Product

1. Observe a rack of product.
   A. Evaluate the rack of product.
      1) If the product is the same color from edge to center of trays, but the color varies from top to bottom of the rack, then an air volume adjustment is needed.
      2) If individual trays of the product are not the same color from edge to center, then the angles need to be adjusted.
2. Adjust as necessary.
3. If satisfactory results can not be achieved after two or three attempts at adjusting, call Bakery Product Support.

NOTE: Changes in product whether raw, mixed, different mixes, or old mix can affect the bake.

Air Volume Adjustment

1. Allow oven to cool.
2. Determine the shutter that needs adjusted.

NOTE: Always start at the dark areas and decrease opening of shutter to prevent air volume depletion.

3. Decrease shutter opening in area where the product is dark and adjust the shutter only 1/32 of an inch at a time.
4. In some cases it will be applicable to increase shutter openings where the product is light. If recommended by Bakery Product Support.
5. Validate adjustments by performing a test bake with the same type of product.

Shutter Angle Adjustment

The revised inner pressure panel design (perforated inner pressure panel behind the air shutter panel) on HBA2G & BXA2G Rack Ovens built after September 6th 2005 reduces the need for shutter angel adjustments. Make corrections with air volume adjustments before making any angle adjustments. Changes to the factory shutter angle settings should only be made to correct specific baking issues that air volume adjustments cannot correct, contact Bakery Product Support for assistance. Ovens prior to September 6th 2005 requiring shutter angle adjustments, refer to diagram HBA2G & BXA2G RACK OVENS FACTORY SETTINGS ON OVENS BUILT BEFORE SEPTEMBER 6th 2005 in this service manual.

ELECTRICAL OPERATION

COMPONENT FUNCTION

Controller . . . . . Controls oven operation.

Transformer . . . . . Supplies 24VAC to ignition module and controller.

Door Switch #1 . . . . . Used with back up controls.

Door Switch #2 . . . . . Allows control to monitor door position and directs power to rack rotation motor and rack lift motor.

Draft Inducer Pressure Switch . . . . . Senses vacuum created by draft inducer fan. Prevents burner ignition if sufficient combustion air is not present.

Hood Pressure Switch . . . . . Senses vacuum in hood vent. Prevents burner ignition if sufficient exhaust vacuum is not present.

Hi Limit Thermostat . . . . . Prevents oven temperature from exceeding 550°F (auto reset).

Gas Valve . . . . . When energized, allows gas to flow to burners.

Ignition Control Module . . . . . Controls and monitors gas heating. Energizes gas valve coil, hot surface ignitor, draft inducer, and monitors presence of flame.

Hot Surface Ignitor . . . . . When energized, ignites gas.

Roll out Switch . . . . . Opens if flame goes beyond confined area of heat exchanger and into control compartment. At 350°F. opens circuit to ignition module (manual reset). Not equipped on all ovens.

Flame Sensor . . . . . Monitors flame at the burner.

Water Solenoid - SV1 . . . . . When energized, allows water to flow onto oven steam generator.

Cir. Fan Motor - M1 . . . . . Circulates air around heat exchanger tubes into oven cavity.

Cir. Fan Motor Contactor - MR1 . . . . . Controls power to circulation fan motor.

Rotator Motor - M4 . . . . . When energized, turns baking rack.

Overload - OL1 . . . . . Monitors current to circulation motor.

Overload - OL2 . . . . . Monitors current to rotator and rack lift motors (optional).

Draft Inducer Motor - M3 . . . . . When energized, drives fan to generate draft required for proper burner operation, and exhausts combustion products into hood vent.

Temperature Sensor . . . . . Monitors air temperature in the oven cavity and sends signal to control board.

Vent Motor - M2 . . . . . When energized operates oven cavity vent.

Vent Position Switch . . . . . Allows controller to monitor the oven cavity vent (open or closed).

Rack Position Switch #1 . . . . . Allows CR3 (Rack Position Relay) to be energized when rack is in load/unload position.

Rack Position Switch #2 . . . . . Signals rack position to control. Switch is operated when the rack is in position for rack removal. (Centered in door opening)

Rack Position Relay - CR3 . . . When energized, switches power from LS1 to LS2. Has a latching circuit.

Back Up Relay -CR2 . . . . . . If open, closes vent on power up when back up controls are used.

Hood Vent Relay -CR1 . . . . . . CR1 - Powers roof mounted vent motor and allows ignition module to be reset after a lock-out.

Rack Lift Switch #1- LS1 . . . . Allows rack to be raised and rack to turn.

Rack Lift Switch #2- LS2 . . . . Allows rack to be lowered.

Rack Lift Motor - M5 . . . . . . M5 - Raises and lowers rack.

OVEN SEQUENCE OF OPERATION

Oven Idle Mode

Idle mode exist when the supply voltage is at the oven control and the control power switch has been turned off for a minimum of 20 minutes.

1. Supply voltage to control with clock displayed (A1 lit).
2. If door is closed (A2 lit).
3. If door is open (A2 not lit) and rack in load/unload position.
   A. CR3 energized.
4. Vent closed (A3 lit).
5. Hood vent output (A5 lit).
   A. CR1 energized and hood mounted fan de-energized.
6. Interior lights will light if door is opened (A9 lit).
7. Neutral to one side of the following components.
   A. 24V transformer / M3 / CR1 / Lights / MR1 / SV1 / M2 / M4 / M5 / CR3
8. High limit, roll out switch and overloads OL1and OL2 closed.

Pre - Heat Cycle

This condition exist as the operator prepares to bake.

1. Oven at idle conditions.
2. Door closed (A2 lit).
3. Control power switch turned on.
   A. Interior lights are illuminated.
   B. Control energized - display is lit.
   C. 5 second delay before call for heat.
4. End of 5 second delay.
   A. CR1 de-energized (A5 not lit). Roof mounted fan energized.
   B. MR1 energized (A6 lit). Circulation motor energized.
5. Hood pressure switch closes.
   A. 24 VAC transformer energized.
      1) 24 VAC to L1 and R of ignition control.
      2) 24V to control (A4 lit).
   B. 120V to F1 of ignition module.
6. Heat output from oven control (A8 lit).
   A. Refer to burner sequence of operation for burner details.
7. Oven will cycle at preheat temperature (375°F default) until operator changes the conditions.

Bake Cycle

1. Oven at preheat temperature.
2. Operator sets conditions for bake cycle.

NOTE: If steam is part of the bake cycle, bake time must also be entered and the steam cycle will always be first.

3. Door is opened to load rack.
    A. Control de-energizes outputs to ignition module and circulation fan motor contactor.

NOTE: If rack carrier is not in load position, the control will position rack carrier in load position if door is ajar.

4. Rack loaded onto carrier and close door.
    A. DS2 N.C. contacts close (both sets).
        1) Door input to control board (A2 lit).
        2) CR3 de-energized.
    B. DS2 N.O. contacts open (both sets).
        1) Circuit path to lift motor completed thru DS2 N.C.
        2) Circulation motor energized.
        3) Refer to burner sequence of operation.
5. Bake cycle started by pushing timer start button.

NOTE: The door can be opened at anytime during the bake cycle. If so, the rack will stop at home position and lower. Circulation motor and burner will not operate. Bake timer paused until door is closed.

    A. Out put from control board to lift motor (A11 lit).
        1) Lift motor energized to lift rack.
        2) After rack starts to lift LS2 N.O. contacts open and N.C. contacts close.
6. Rack reaches raised position.
    A. LS1 N.C. contacts open.
        1) Lift motor M5 de-energized.
    B. LS1 N.O. contacts close.
        1) Rotator motor M4 energized.
7. If steam is part of the bake cycle:
    A. Water solenoid SV1 will be energized (A10 lit) for the required number of seconds.

NOTE: 30 seconds is the maximum number of seconds that the control will energize SV1. The steam time can be set to a maximum of 95 seconds.

    B. Circulation motor and burner will not operate. (A6 and A8 not lit)
8. Steam cycle ends:
    A. Water solenoid SV1 de-energized .
    B. Circulation motor and burner operate.
9. Remainder of bake cycle controlled by bake timer.
10. Time expires and buzzer sounds.
11. Stop button pressed to silence buzzer.

NOTE: Rack remains in bake position and rotating until door is opened.

12. Door opened to unload oven.
    A. Control removes power from heat output and circulation blower output.
        1) Circulation motor and burner will not operate while door is open.
    B. DS2 N.C. contacts open (both sets).
        1) Input removed from control board (A2 not lit).
        2) Circuit to rotation motor completed thru N.O. contacts.

C. DS2 N.O. contacts closed (both sets).

1) Circuit to rotation motor completed thru DS2 N.O. and CR3 N.C.

D. Rack continues to rotate until rack pointer operates rack position switch #1 and #2. (Rack centered in door)

NOTE: In some instances when the door is opened, the rack may be centered in door. CR3 will energize. Rack will stay centered in door and then lower.

E. Rack position switch #2 N.O. contacts close. Input signals control board that rack is centered in door for the first time since stop button was pushed and door was opened.

F. Rack position switch #1 N.O. contacts close.

1) CR3 energized thru rack position switch #1 N.O. contacts. Latching circuit keeps CR3 energized if rack would coast past pointer.

2) CR3 N.C. contacts open and rotator motor M4 de-energized.

3) CR3 N.O. contacts close and lift motor is energized thru LS2 N.C. contacts, lowering the rack.

4) As the rack starts to lower LS1 N.O. contacts open and LS1 N.C. contacts close.

13. When rack is completely lowered, LS2 N.C. contacts open and LS2 N.O. contacts close. Lift motor is de-energized.

14. Remove rack.

15. Shut door and oven will continue to maintain set temperature (preheat mode). The rack lift will remain in load/unload position and not rotate.

BURNER SEQUENCE OF OPERATION

1. Power (24VAC) to ignition module L1 and R - (A4 lit).

2. 24VAC output from control (A8 lit) to ignition module terminal W and one side of the draft inducer pressure switch.

A. Draft inducer motor energized from ignition module terminal F2 (115VAC).

B. Inducer pressure switch closes.

1) Power to terminal PS.

3. Pre-Purge cycle begins (15 seconds).

4. Ignition module energizes hot surface ignitor (24VAC) terminal S1 for 4 second heat up time.

5. Gas valve energized MV1 two seconds after start of hot surface ignitor cycle.

6. Top burner lights and flame spreads to all burners.

7. Flame sensor rod is engulfed in flame and a current is rectified between the flame and ground thru the sensor. Ignition module requires a steady 1.0 microamp to verify flame presence.

NOTE: Ignition module makes three attempts to achieve ignition. 30 seconds inter-purge between each attempt. If after the three tries for ignition and the burner has not lit, there will be an additional 15 seconds purge time. After which the ignition module will enter a lock-out condition. The ignition module utilizes a 3 blink code of the LED for this problem. The ignition module will have to be reset by removing power from the ignition module. To do this, open the door or cycle the main circuit breaker (110VAC) to the oven.

8. When set temperature is met, control removes heat output to ignition module terminal W.

A. Ignition module (A8 not lit) is de-energized.

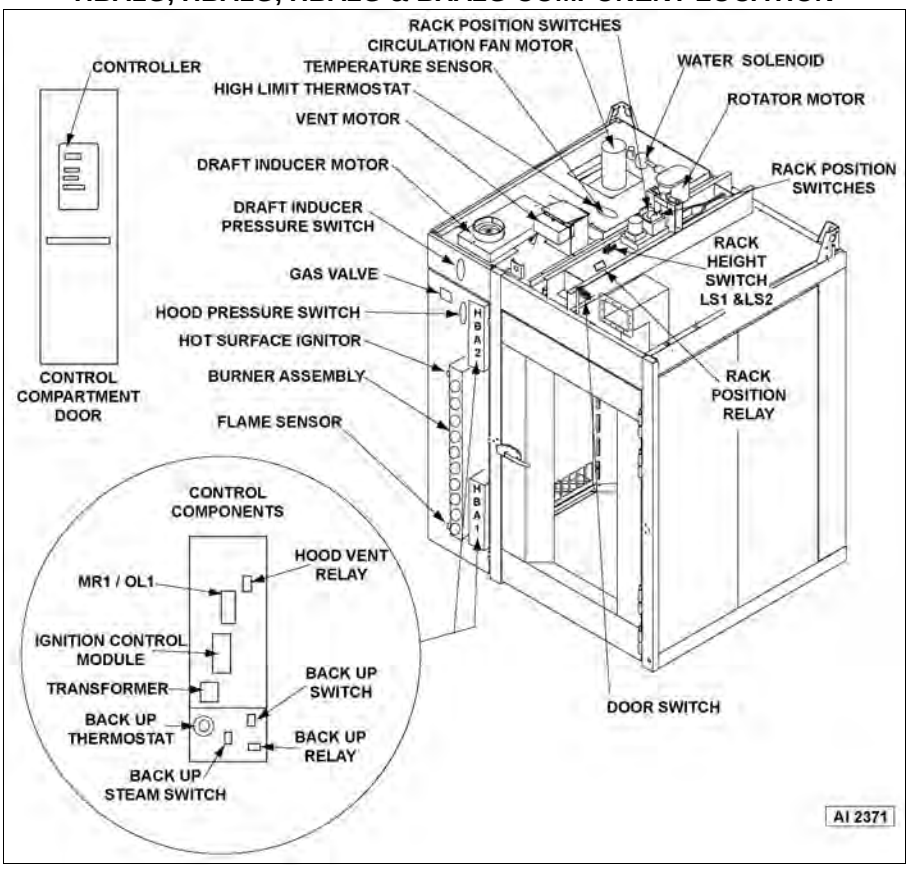
1) Gas valve de-energized.

2) Draft inducer motor M3 de-energized 30 seconds after gas valve de-energized.

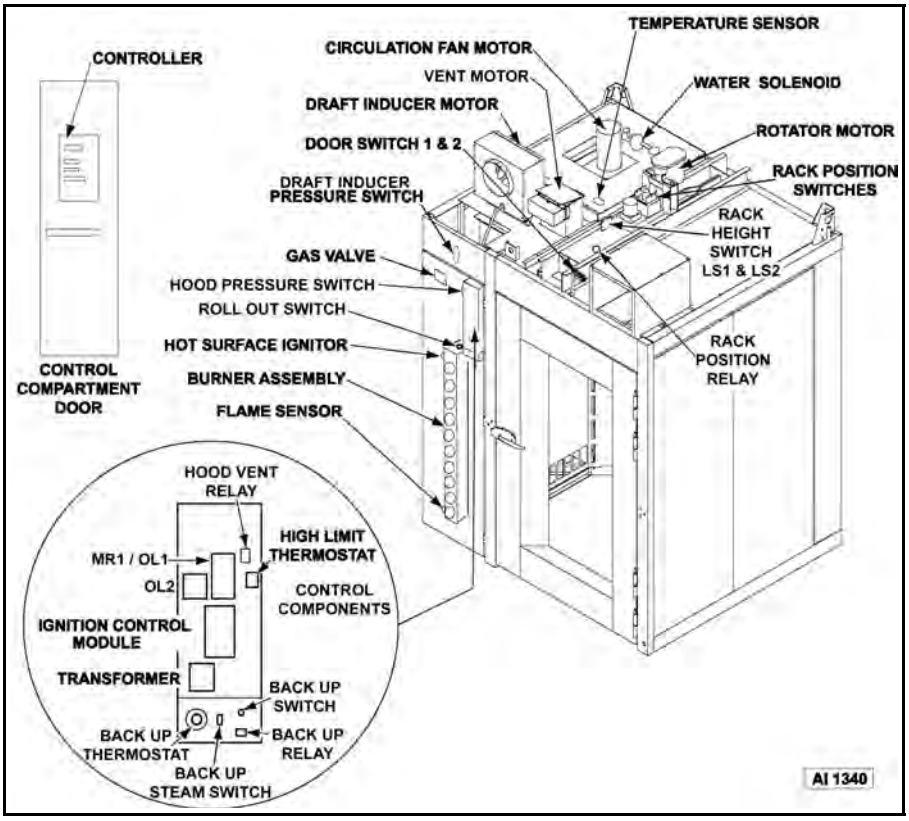
B. Inducer pressure switch N.O. contacts open.

COMPONENT LOCATION

HBA1G, HBA1G, HBA2G & BXA2G COMPONENT LOCATION



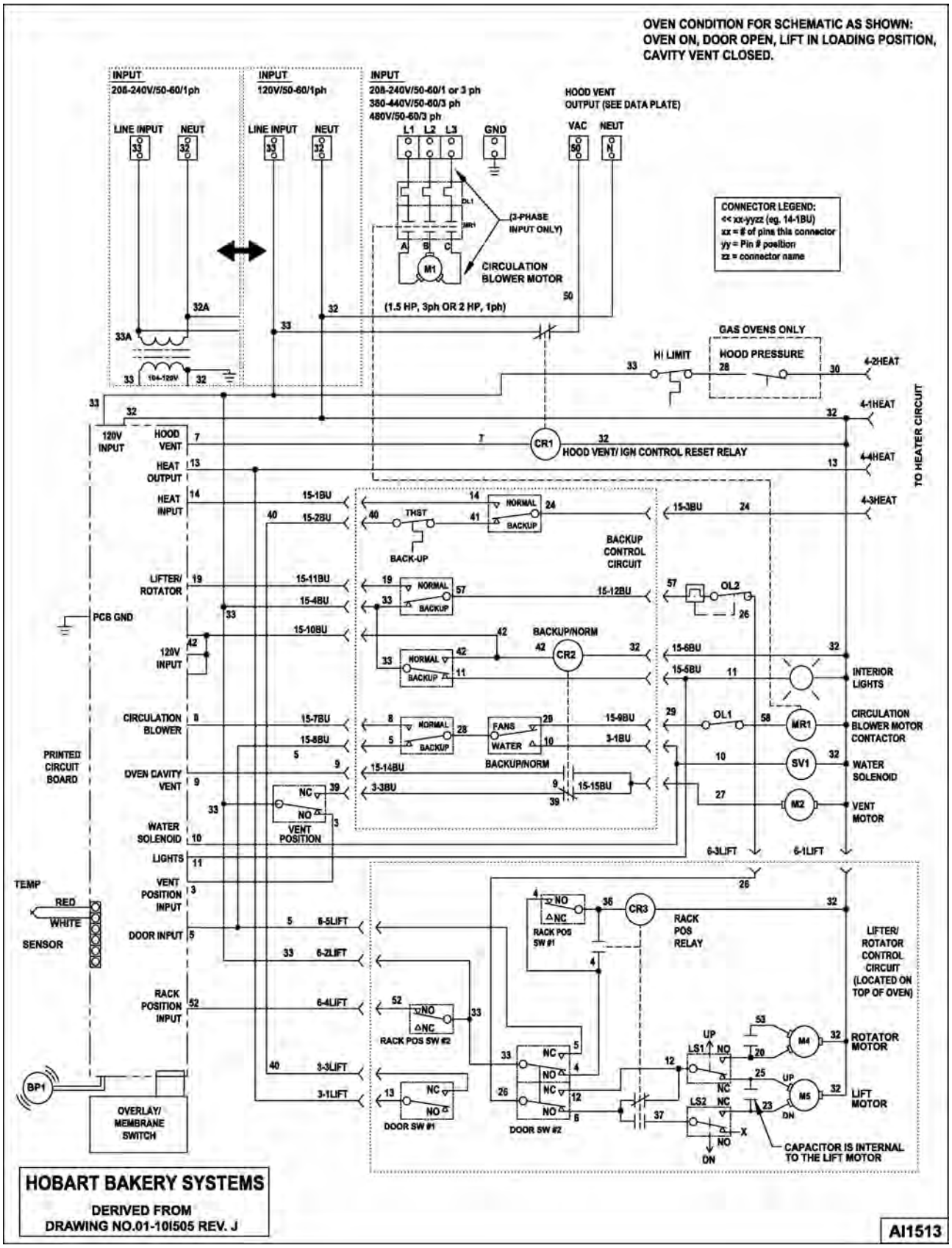
EARLY MODELS ONLY HBA2G & BXA2G COMPONENT LOCATION

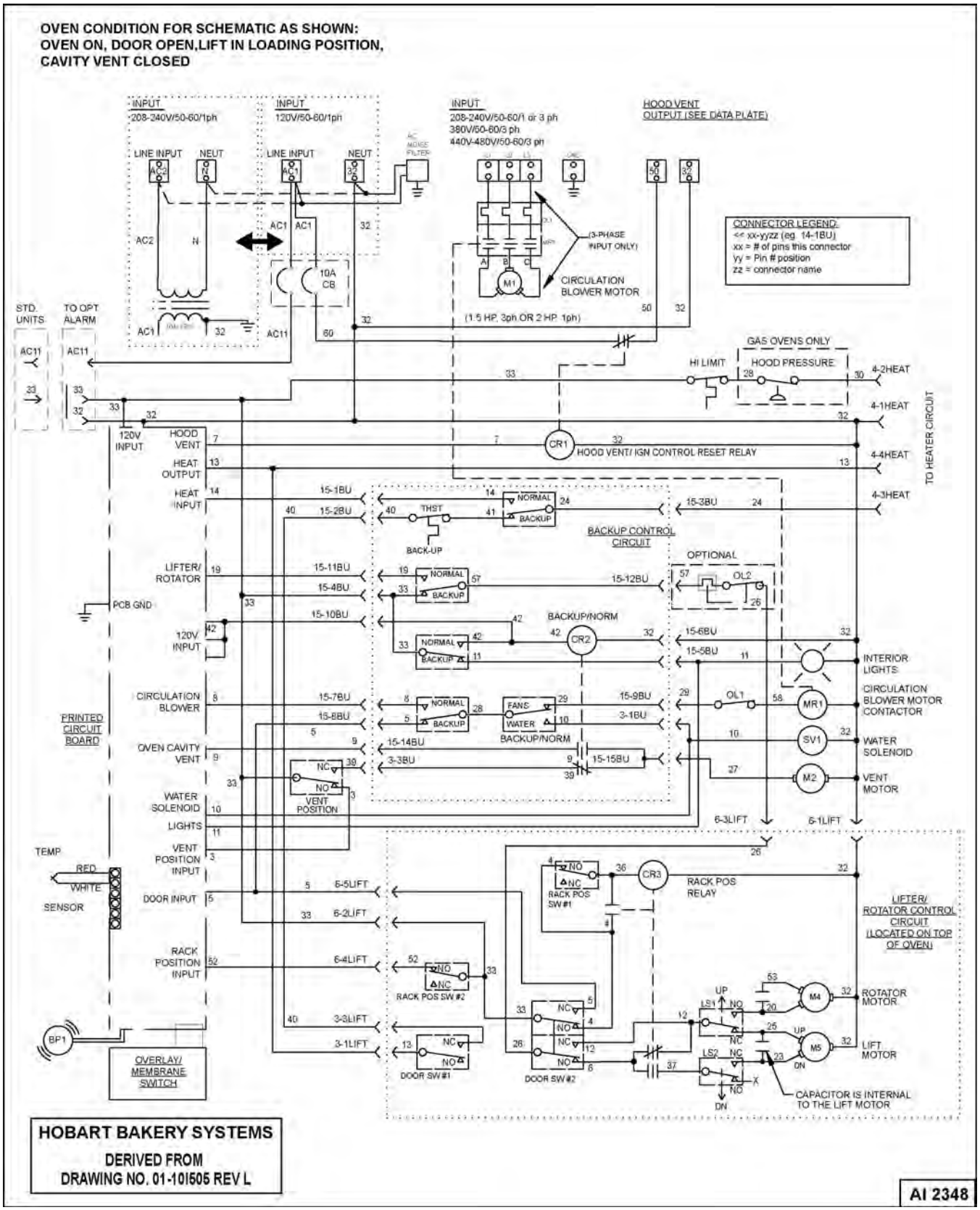


WIRING DIAGRAMS

SCHEMATIC - WITH BACKUP CONTROLS

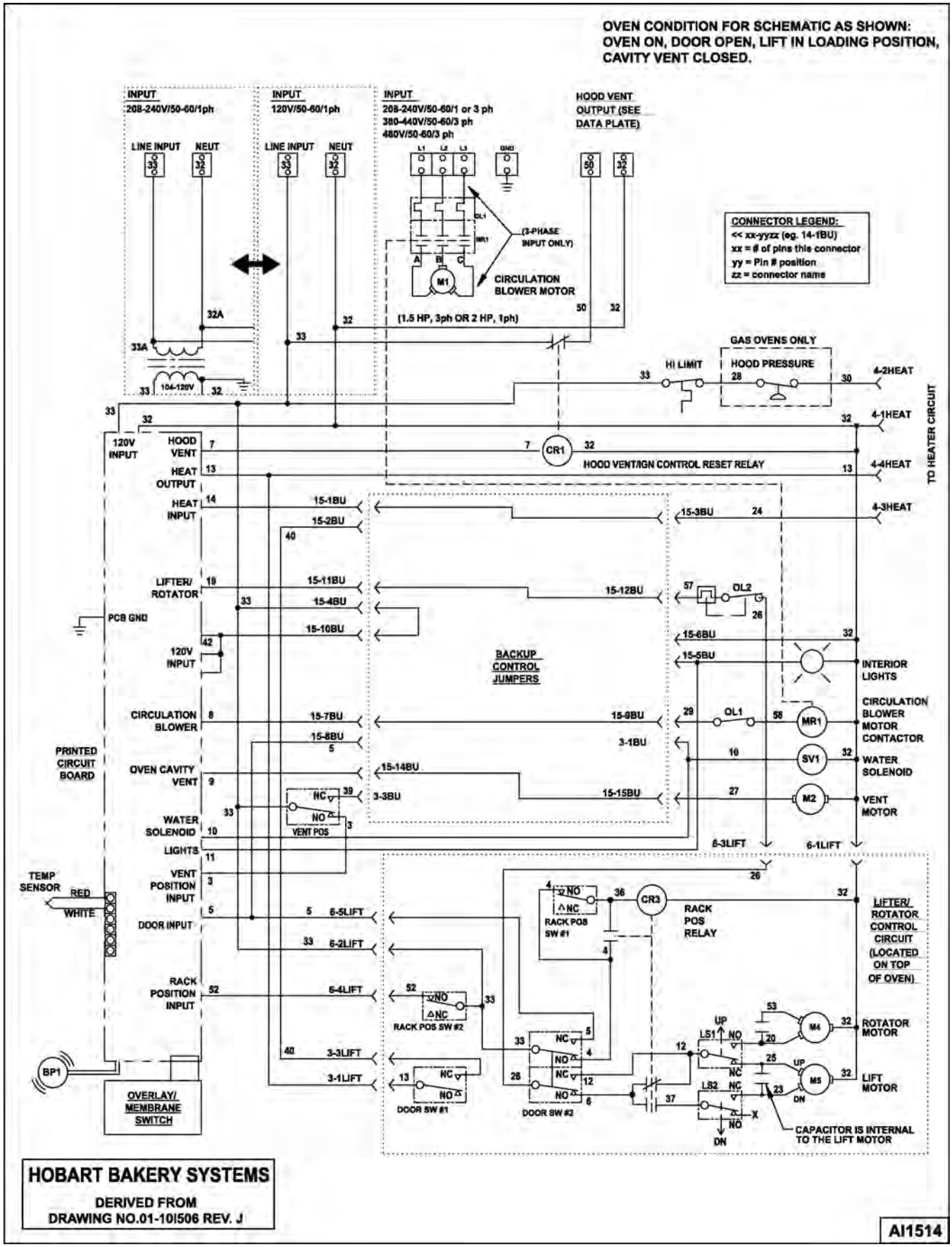
EARLY MODELS ONLY

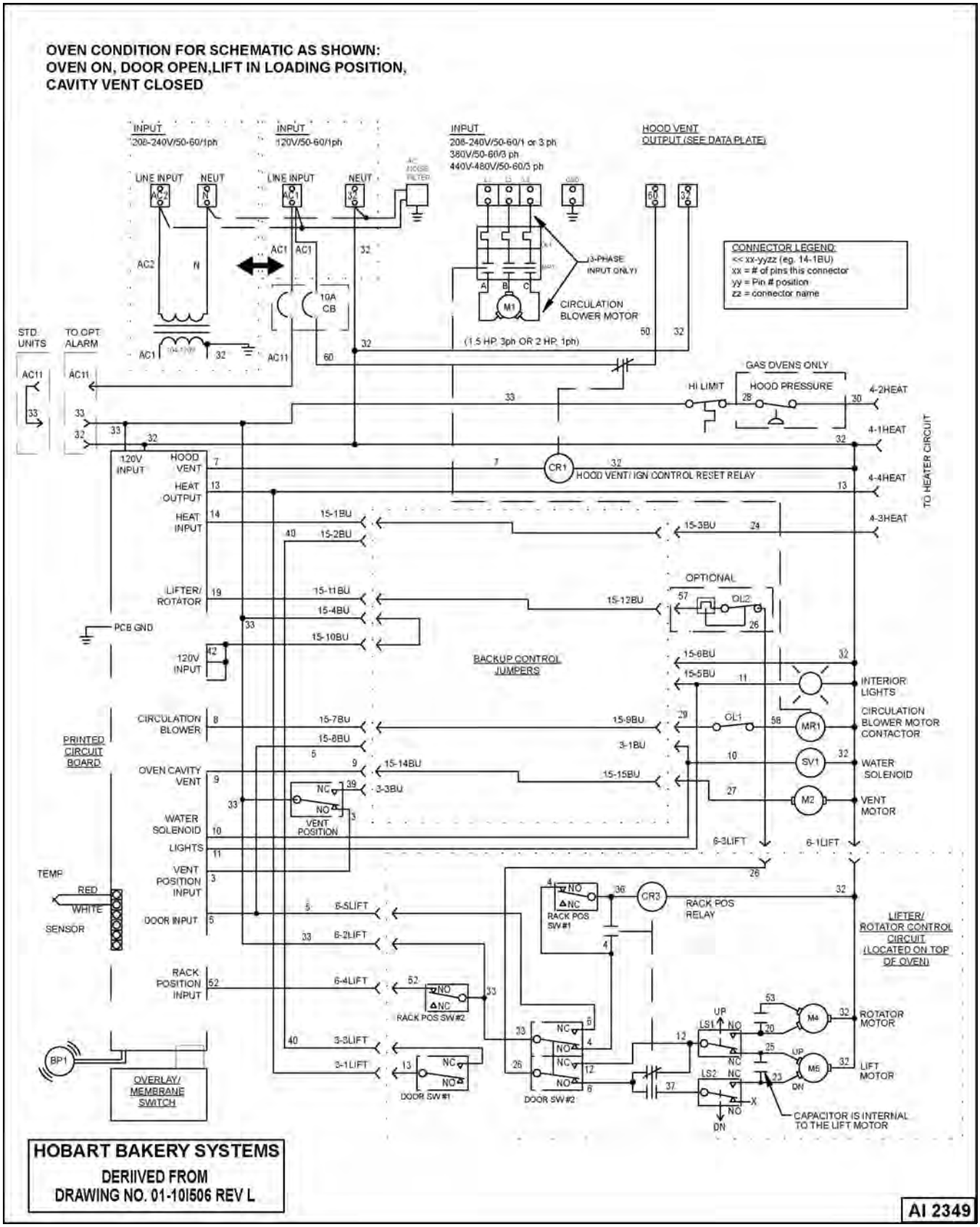



OVEN CONDITION FOR SCHEMATIC AS SHOWN:
OVEN ON, DOOR OPEN,LIFT IN LOADING POSITION,
CAVITY VENT CLOSED
INPUT
208-240V/50-60/1ph
INPUT
120V/50-60/1ph
INPUT
208-240V/50-60/1 or 3 ph
380V/50-60/3 ph
440V-480V/50-60/3 ph
HOOD VENT
OUTPUT (SEE DATA PLATE)
LINE INPUT
NEUT
AC2
N
AC1
10A CB
(3-PHASE INPUT ONLY)
CIRCULATION BLOWER MOTOR
(1.5 HP, 3ph OR 2 HP, 1ph)
CONNECTOR LEGEND:
<< xx-yyzz (eg. 14-1BU)
xx = # of pins this connector
yy = Pin # position
zz = connector name
STD. UNITS
TO OPT ALARM
AC11
120V INPUT
HOOD VENT
HEAT OUTPUT
HEAT INPUT
LIFTER/ ROTATOR
PCB GND
120V INPUT
CIRCULATION BLOWER
OVEN CAVITY VENT
WATER SOLENOID
LIGHTS
VENT POSITION INPUT
DOOR INPUT
RACK POSITION INPUT
TEMP
RED
WHITE
SENSOR
BP1
OVERLAY/ MEMBRANE SWITCH
PRINTED CIRCUIT BOARD
GAS OVENS ONLY
HOOD PRESSURE
HI LIMIT
4-2HEAT
4-1HEAT
4-4HEAT
4-3HEAT
TO HEATER CIRCUIT
CR1
HOOD VENT/ IGN CONTROL RESET RELAY
BACKUP CONTROL CIRCUIT
THST
BACK-UP
NORMAL
BACKUP
OPTIONAL
OL2
BACKUP/NORM
CR2
OL1
MR1
CIRCULATION BLOWER MOTOR CONTACTOR
SV1
WATER SOLENOID
M2
VENT MOTOR
INTERIOR LIGHTS
FANS
WATER
VENT POSITION
6-3LIFT
6-1LIFT
CR3
RACK POS RELAY
RACK POS SW #1
RACK POS SW #2
DOOR SW #1
DOOR SW #2
6-5LIFT
6-2LIFT
6-4LIFT
3-3LIFT
3-1LIFT
LIFTER/ ROTATOR CONTROL CIRCUIT (LOCATED ON TOP OF OVEN)
UP
DN
LS1
LS2
M4
M5
ROTATOR MOTOR
LIFT MOTOR
CAPACITOR IS INTERNAL TO THE LIFT MOTOR
HOBART BAKERY SYSTEMS
DERIVED FROM
DRAWING NO. 01-101505 REV L
AI 2348

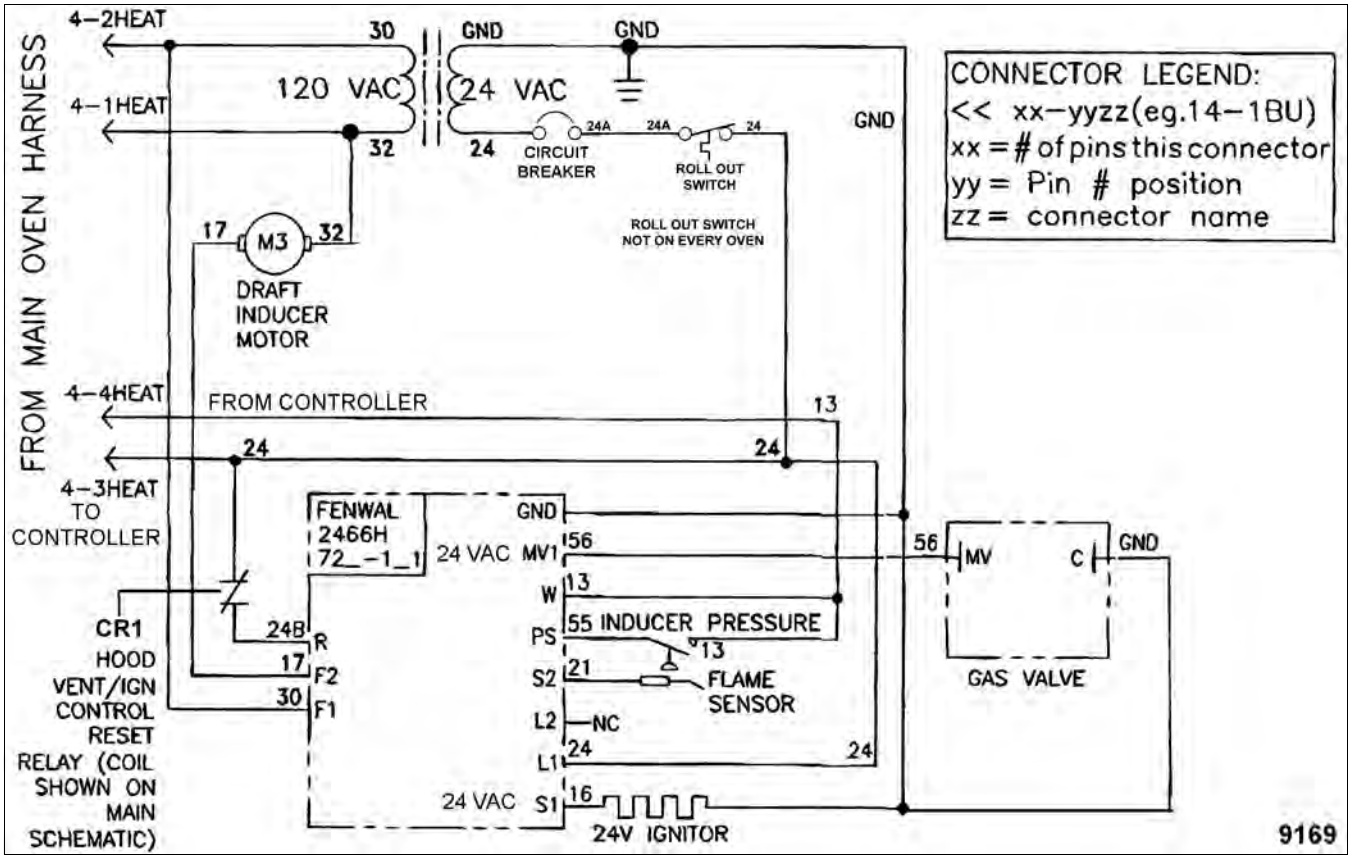
SCHEMATIC - WITHOUT BACKUP CONTROLS

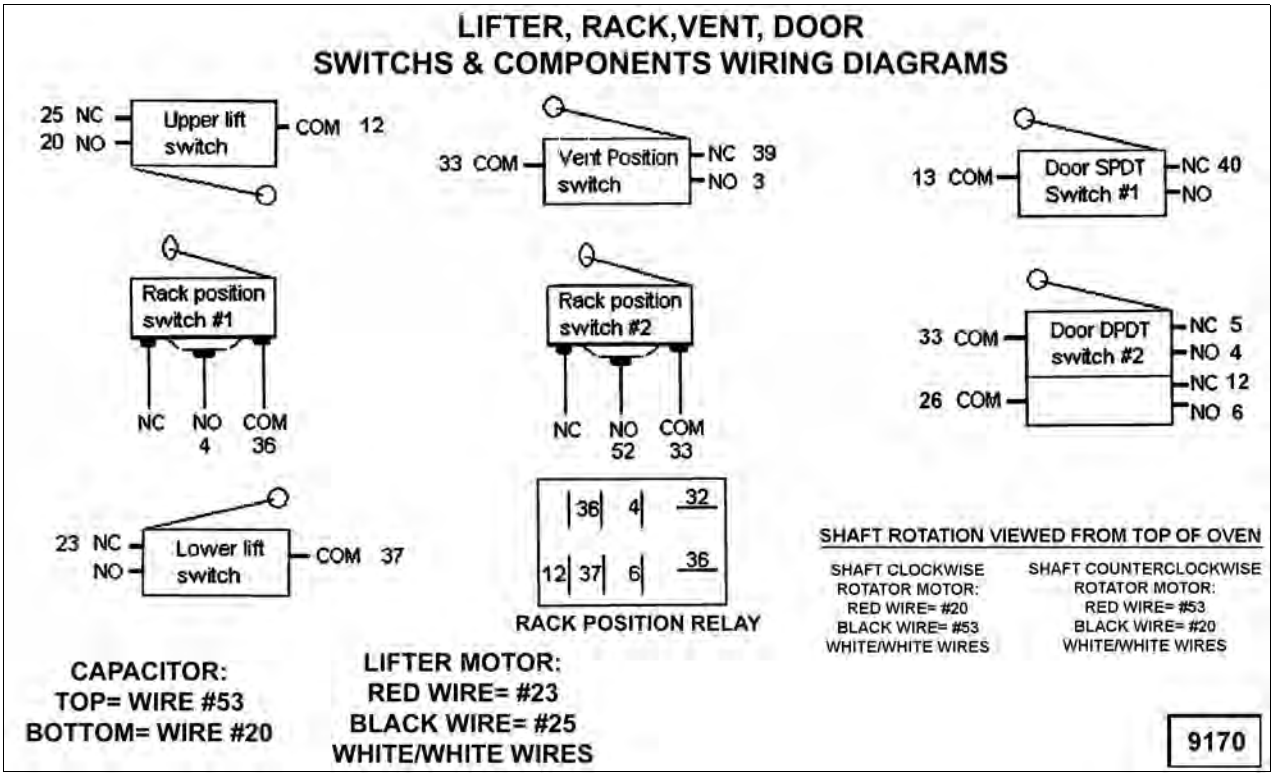
EARLY MODELS ONLY




OVEN CONDITION FOR SCHEMATIC AS SHOWN:
OVEN ON, DOOR OPEN,LIFT IN LOADING POSITION,
CAVITY VENT CLOSED
INPUT
208-240V/50-60/1ph
INPUT
120V/50-60/1ph
INPUT
208-240V/50-60/1 or 3 ph
380V/50-60/3 ph
440V-480V/50-60/3 ph
HOOD VENT
OUTPUT (SEE DATA PLATE)
LINE INPUT
NEUT
LINE INPUT
NEUT
AC NOISE FILTER
3-PHASE
INPUT ONLY
CIRCULATION
BLOWER MOTOR
(1.5 HP, 3ph OR 2 HP, 1ph)
10A
CB
CONNECTOR LEGEND:
<< xx-yyzz (eg. 14-1BU)
xx = # of pins this connector
yy = Pin # position
zz = connector name
STD
UNITS
TO OPT
ALARM
GAS OVENS ONLY
HI LIMIT
HOOD PRESSURE
4-2HEAT
4-1HEAT
4-4HEAT
4-3HEAT
TO HEATER CIRCUIT
120V
INPUT
HOOD
VENT
HEAT
OUTPUT
HEAT
INPUT
LIFTER/
ROTATOR
PCB GND
120V
INPUT
CR1
HOOD VENT/ IGN CONTROL RESET RELAY
BACKUP CONTROL
JUMPERS
OPTIONAL
INTERIOR
LIGHTS
CIRCULATION
BLOWER
OVEN CAVITY
VENT
WATER
SOLENOID
LIGHTS
VENT
POSITION
INPUT
DOOR INPUT
RACK
POSITION
INPUT
PRINTED
CIRCUIT
BOARD
VENT
POSITION
CIRCULATION
BLOWER MOTOR
CONTACTOR
WATER
SOLENOID
VENT
MOTOR
6-3LIFT
6-1LIFT
TEMP
RED
WHITE
SENSOR
RACK POS
SW #1
CR3
RACK POS
RELAY
LIFTER/
ROTATOR CONTROL
CIRCUIT
(LOCATED ON TOP
OF OVEN)
6-5LIFT
6-2LIFT
6-4LIFT
RACK POS SW #2
ROTATOR
MOTOR
LIFT
MOTOR
BP1
OVERLAY/
MEMBRANE
SWITCH
3-3LIFT
3-1LIFT
DOOR SW #1
DOOR SW #2
CAPACITOR IS INTERNAL
TO THE LIFT MOTOR
HOBART BAKERY SYSTEMS
DERIIVED FROM
DRAWING NO. 01-10I506 REV L
AI 2349

HEATING CIRCUIT - BURNER





OVEN TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES
Oven completely inoperative. No display on control.	1. Facilities main circuit breaker open. 2. Controller inoperative. 3. Controller membrane inoperative. 4. Back-up control switch on. (If applicable)
Oven does not operate. Display lit or display flashing and oven cavity lights on.	1. Door open. 2. High limit thermostat open. 3. Hood pressure switch open. 4. Incorrect wiring.
Oven does not operate. Display shows Shdn (shutdown) in the bake timer display and flashes the Oven Temp display while alarm sounds.	1. Oven in Oven Temperature Safety Alarm Mode. Temperature at the temperature probe between 570°F. to 600°F. for ten seconds. Remove 120VAC supply power to the oven.
Oven does not operate. Erratic display.	1. E-prom chip malfunction. 2. Controller malfunction.
Rack does not lift when bake cycle is initiated.	1. Lift motor or OL2 open. 2. Door open or door switch malfunction. 3. Controller malfunction. 4. Mechanical bind due to actuator or lift shaft. 5. LS1 inoperative.
Rack does not turn when bake cycle is operating.	1. Rotator motor malfunction or OL2 open. 2. Door open or door switch malfunction. 3. Controller malfunction. 4. Mechanical bind due to rack or chain. 5. LS1 inoperative.
Rack does not lower when rack stops in load/unload position when door is opened during or at end of bake cycle.	1. Door switch malfunction. 2. Lift motor or OL2 open. 3. Controller malfunction. 4. Mechanical bind due to actuator or lift shaft. 5. LS2 inoperative.
Rack stops in wrong position or doesn't stop after door is opened.	1. Rack pointer switch out of adjustment. 2. Rack position switches not adjusted or inoperative. 3. CR3 malfunction. 4. Carrier set screws loose.
No steam or low volume of steam.	1. Water supply to oven not on. 2. Incoming water pressure too low. 3. Solenoid valve malfunction. 4. Control malfunction. 5. Vent open or vent switch malfunction.

SYMPTOM	POSSIBLE CAUSES
Excessive moisture in oven.	1. Solenoid valve sticking open. 2. Drain clogged or plumbed incorrectly. 3. Malfunctioning water pressure regulator. 4. Excessive water pressure.
Recovery time slow after steaming.	1. Excessive water input. 2. Program set point incorrect. 3. Hysteresis programed incorrectly. 4. Gas supply pressure improperly adjusted. 5. Cavity vent open.
Incorrect heat.	1. Control not calibrated. 2. Control in incorrect temperature mode (°F vs. °C). 3. Temperature probe malfunction. 4. Circulation fan motor malfunction. 5. See BURNER TROUBLESHOOTING.
Burner does not light.	1. No output from controller. 2. Door open or door switch inoperative. 3. See BURNER TROUBLESHOOTING.
High or low draft pressure in oven draft inducer.	1. Draft inducer motor or fan malfunction. 2. Draft inducer fan blade not positioned on motor shaft correctly. 3. Damaged draft inducer fan blade. 4. Roof mounted fan too large (high pressure) or too small (low pressure).
Lights do not work.	1. Bulbs burned out. 2. Control program set to OFF. 3. Incorrect supply voltage.
Uneven baking.	1. Circulation fan loose on motor shaft or damaged. 2. Obstruction in air channels. 3. Circulation motor(s) inoperative. 4. Air and angle shutters not adjusted correctly.

IGNITION MODULE TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES
Diagnostic LED continuous ON - Ignition control powered, but module does not have outputs at appropriate times. 1. No draft inducer output. 2. No gas valve output. 3. No ignitor output.	1. Ignition control module malfunction. 2. Incorrect ignition module. 3. Incorrect wiring.
Diagnostic LED '1' flash - Airflow fault. Module doesn't have draft inducer pressure switch input.	1. Draft inducer pressure switch inoperative. 2. Draft inducer pressure switch tubing malfunction. 3. Draft inducer fan blade damaged or inoperative. 4. Draft inducer motor malfunction. 5. Incorrect pressure switch wiring. 6. Incorrect wiring.
Diagnostic LED '2' flashes - Flame no call for heat. **NOTE:** Flame continues after controller set temperature is satisfied. (Gas valve sticks open.)	1. Gas valve malfunction.
Diagnostic LED '3' flashes - No flame sense after trial for ignition. (3 attempts)	1. Flame sensor rod not positioned correctly or malfunction. 2. Insufficient flame current. 3. Ignitor malfunction. 4. Gas valve inoperative or improperly adjusted. 5. Late ignition, check gas manifold pressure. 6. Improper flame propagation (flame produced), check orifice alignment and cross over tube adjustment.

LED DIAGNOSTIC INDICATOR CODES	
LED	**Code**
LED off	No Fault
LED on	Control Fault
'1' Flash	Air Flow Fault
'2' Flash	Flame No Call For Heat
'3' Flash	Ignition Lockout

BURNER TROUBLESHOOTING