

SECTION 2 **INSTALLATION**

NOTE: For U.S. installations the installation must conform with local codes or in absence of local codes, with ANSI Z223.1-latest edition and electrical code ANSI/NFPA No. 70-latest edition.

NOTE: For Canadian Installations - The installation should be done in accordance with the CAN 1-B149.1 or .2 installation code and/or local code and the Canadian electrical code, Part 1, CGA C22.1 for the electrical features.

I. UNLOADING

Your Middleby Marshall Series PS200-R68 Oven(s) is shipped partially assembled and it will arrive in a carton.

Carton size for all Series 200-R68 Ovens is:

84" (2134mm) Long x
58" (1473mm) Wide x
44" (1118mm) High.

A Pre-installation Procedures Manual (MM P/N 88910-0009) is attached to the exterior wall of the carton. This manual contains detailed instructions on unpacking and moving the oven(s) into your facility. When your common carrier or truck line notifies you of delivery, you must have a forklift at the facility to unload the carton(s).

Instructions for stacking the ovens are contained in a separate manual issued to Middleby Marshall Certified Installers.

If you have a door wider than the carton simply move the carton into your facility and set up an appointment with your Certified Middleby Marshall Installer.

If your door is narrower than the carton, then the oven will have to be uncrated. Follow directions shown in the Pre-Installation Procedures Manual.

Each crate must be examined before signing the Bill of Lading. Report any visible damage caused by the trucker in transit, and check for the proper number of crates. If apparent damage is found, arrangements should be made to file a claim against the carrier. Interstate Commerce Regulations require that the claim must be initiated by the consignee within 10 days from the date it is received.

NOTE

There Must Be Adequate Clearance Between Oven And Combustible Construction. Clearance Must Also Be Provided For Servicing And For Operation.

CAUTION: It is required that the oven be placed under a ventilation hood for adequate air supply and ventilation.

CAUTION: A minimum clearance of 0" from non-drive end of oven to wall, 18" from drive end of oven to wall and 6" from rear wall to air openings at rear of unit must be maintained. For servicing and cleaning a minimum of 18" clearance from all walls and combustible materials is recommended.

CAUTION: Do not obstruct the flow of combustion and ventilation air to and from your oven. Do not obstruct the ventilation holes in the control panel, as these provide the combustion air for the burner.

SECTION 2
INSTALLATION

**PS200-R68 OVEN INSTALLATION
REQUIRED KITS AND EQUIPMENT**

TYPE OF INSTALLATION	KITS AND EQUIPMENT			
	PS200-R68 Gas Oven Installation Kit P/N 31350	PS200-R68 Electric Oven Installation Kit P/N 31514	PS200-R68 Single Oven Option Kit P/N 49025-0007	PS200-R68 Double Oven Option Kit P/N 31361
PS200-R68 Single Gas Oven	1		1	
PS200-R68 Single Electric Oven		1	1	
PS200-R68 Double Gas Oven	2			1
PS200-R68 Double Electric Oven		2		1

**PS220-R68 OVEN INSTALLATION
REQUIRED KITS AND EQUIPMENT**

	KITS AND EQUIPMENT			
	PS220-R68 Gas Oven Installation Kit P/N 31352	PS220-R68 Electric Oven Installation Kit P/N 31517	PS220-R68 Single Oven Option Kit P/N 30752	PS220-R68 Double Oven Option Kit P/N 31363
PS220-R68 Single Gas Oven	1		1	
PS220-R68 Single Electric Oven		1	1	
PS220-R68 Double Gas Oven	2			1
PS220-R68 Double Electric Oven		2		1

**PS224-R68 OVEN INSTALLATION
REQUIRED KITS AND EQUIPMENT**

	KITS AND EQUIPMENT			
	PS224-R68 Gas Oven Installation Kit P/N 31351	PS224-R68 Electric Oven Installation Kit P/N 31516	PS224-R68 Single Oven Option Kit P/N 49025-0016	PS224-R68 Double Oven Option Kit P/N 31362
PS224-R68 Single Gas Oven	1		1	
PS224-R68 Single Electric Oven		1	1	
PS224-R68 Double Gas Oven	2			1
PS224-R68 Double Electric Oven		2		1

**PARTS LIST FOR SERIES PS200-R68 GAS OVEN
INSTALLATION KIT
PS200-R68, P/N 31350
PS220-R68, P/N 31352
PS224-R68, P/N 31351**

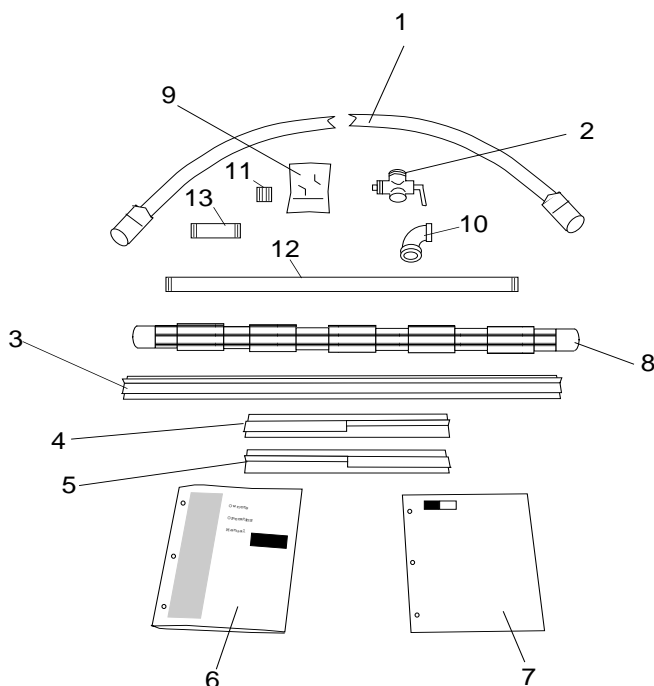
(Two required for double oven)

ITEM NO.	QTY	PS200-R68 PART NO.	PS220-R68 PART NO.	PS224-R68 PART NO.	DESCRIPTION
1	1	22361-0005	22361-0005	22361-0005	FLEXIBLE GAS HOSE, 72"
2	1	23115-0010	23115-0010	23115-0010	3/4" GAS SHUTOFF VALVE
3	1	31006	30849	30851	CONVEYOR END STOP
4	1	30830	30830	30830	CONVEYOR LEFT REAR STOP
5	1	30796	30796	30796	CONVEYOR RIGHT REAR STOP
6	1	88910-0008	88910-0008	88910-0008	SERIES PS200-R68 OWNER/OPERATOR MANUAL
7	1	1002040	1002040	1002040	SERVICE STATION DIRECTORY
8	1	33900-0032	33900-0081	33900-0035	CONVEYOR WIRE BELT
9	1	42400-0089	49400-0090	49400-0197	MASTER LINK KIT
10	1	23125-0002	23125-0002	23125-0002	ELBOW 90° BLK REDUCER 1/2" X 3/4"
11	1	23153-0005	23153-0005	23153-0005	NIPPLE BLK 3/4 CLOSE
12	1	31315	31315	31315	PIPE, 31", UPPER OVEN
13	1	31238	31238	31238	NIPPLE BLK 1/2" X 4"

**PARTS LIST FOR SERIES PS200-R68 ELECTRIC OVEN
INSTALLATION KIT
PS200-R68, P/N 31514
PS220-R68, P/N 31517
PS224-R68, P/N 31516**

(Two required for double oven)

ITEM NO.	QTY	PS200-R68 PART NO.	PS220-R68 PART NO.	PS224-R68 PART NO.	DESCRIPTION
3	1	31006	30849	30851	CONVEYOR END STOP
4	1	30830	30830	30830	CONVEYOR LEFT REAR STOP
5	1	30796	30796	30796	CONVEYOR RIGHT REAR STOP
6	1	88910-0008	88910-0008	88910-0008	SERIES PS200-R68 OWNER/OPERATOR MANUAL
7	1	1002040	1002040	1002040	SERVICE STATION DIRECTORY
8	1	33900-0032	33900-0081	33900-0035	CONVEYOR WIRE BELT
9	1	42400-0089	49400-0090	49400-0197	MASTER LINK KIT



**Figure 2-1.
Series PS200-R68 Gas & Electric Oven
Installation Kits**

SECTION 2
INSTALLATION

PARTS LIST FOR SERIES PS200-R68 SINGLE OVEN OPTION KIT

PS200-R68, P/N 31360

PS220-R68, P/N 30752

PS224-R68, P/N 49025-0016

ITEM NO.	QTY	PS200-R68 PART NO.	PS220-R68 PART NO.	PS224-R68 PART NO.	DESCRIPTION
1	1	35900-0055	37900-0184	35900-0411	BASE PAD
2	4	37900-0102	37900-0102	37900-0102	LEGS
3	2	22290-0009	22290-0009	22290-0009	SWIVEL CASTER W/LOCKING BRAKE
4	2	22290-0010	22290-0010	22290-0010	SWIVEL CASTER
5	32	A11039	A11039	A11039	3/8" LOCKWASHER
6	32	21416-0001	21416-0001	21416-0001	3/8" FLAT WASHER
7	32	220373	220373	220373	3/8 - 16 SCREW HEX HD SS
8	4	21256-0008	21256-0008	21256-0008	SCREWS FOR TOP 10-32 X 3/8" RH
9	32	21296-0005	21296-0005	21296-0005	10-32 X 3/4" SCREW HEX WASHER HD SS
10	1	22450-0228	22450-0228	22450-0228	RESTRAINT CABLE ASSEMBLY
13	1	31319	31319	31319	LABEL, UPPER
14	1	31320	31320	31320	LABEL, LOWER
15	1	32116	32116	32116	WIREWAY ASSEMBLY
16	2	21516-0001	21516-0001	21516-0001	POP RIVETS
17	1	32227	32227	32227	INSTRUCTION, CONTROL BOX INSTALLATION
Not shown	1	32023	31261	30878	OVEN TOP

PARTS LIST FOR SERIES PS200-R68 DOUBLE OVEN OPTION KIT

PS200-R68, P/N 31361

PS220-R68, P/N 31363

PS224-R68, P/N 31362

ITEM NO.	QTY	PS200-R68 PART NO.	PS220-R68 PART NO.	PS224-R68 PART NO.	DESCRIPTION
1	1	35900-0055	37900-0184	35900-0411	BASE PAD
2	4	37900-0102	37900-0102	37900-0102	LEGS
3	2	22290-0009	22290-0009	22290-0009	SWIVEL CASTER W/LOCKING BRAKE
4	2	22290-0010	22290-0010	22290-0010	SWIVEL CASTER
5	32	A11039	A11039	A11039	3/8" LOCKWASHER
6	32	21416-0001	21416-0001	21416-0001	3/8" FLAT WASHER
7	32	220373	220373	220373	3/8 - 16 SCREW HEX HD SS
8	4	21256-0008	21256-0008	21256-0008	SCREWS FOR TOP 10-32 X 3/8" RH
9	32	21296-0005	21296-0005	21296-0005	10-32 X 3/4" SCREW HEX WASHER HD SS
10	1	22450-0228	22450-0228	22450-0228	RESTRAINT CABLE ASSEMBLY
11	1	30042	30042	30042	VENT EXTENSION
12	1	30039	30039	30039	OFFSET CROSSOVER VENT
13	1	31319	31319	31319	LABEL, UPPER
14	1	31320	31320	31320	LABEL, LOWER
15	1	32116	32116	32116	WIREWAY ASSEMBLY
16	2	21516-0001	21516-0001	21516-0001	POP RIVETS
17	1	32227	32227	32227	INSTRUCTION, CONTROL BOX INSTALLATION
Not Shown	1	32023	31261	30878	OVEN TOP

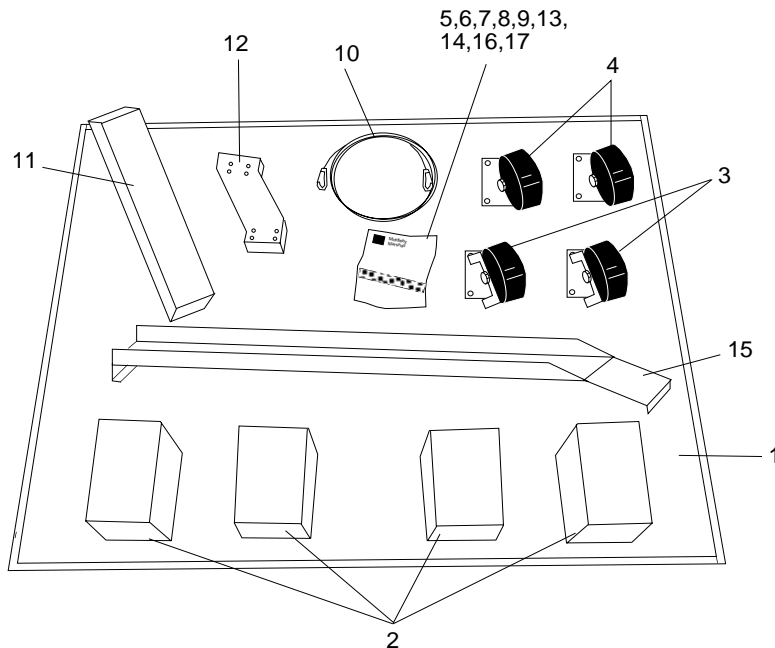


Figure 2-2. Series PS200-R68 Single and Double Oven Option Kits

SECTION 2 INSTALLATION

NOTE: The Model PS200-R68 Series ovens are manufactured with the conveyor drive at either the right or left end of the oven.

- 1 **GAS OVEN:** Gas Inlet
ELECTRIC OVEN: Conduit for Electrical Connection
- 2 **GAS OVEN:** Electrical Junction Box
- 3 **RECOMMENDED MINIMUM CLEARANCES:**
Rear of Oven to Wall - 3" (76mm)
Non-Drive End of Oven to Wall - 0"
Drive End of Oven to Wall - 18" (457mm)
- 4 **OVEN VENT - GAS OVEN ONLY**
2" x 3" (50mm x 75mm)

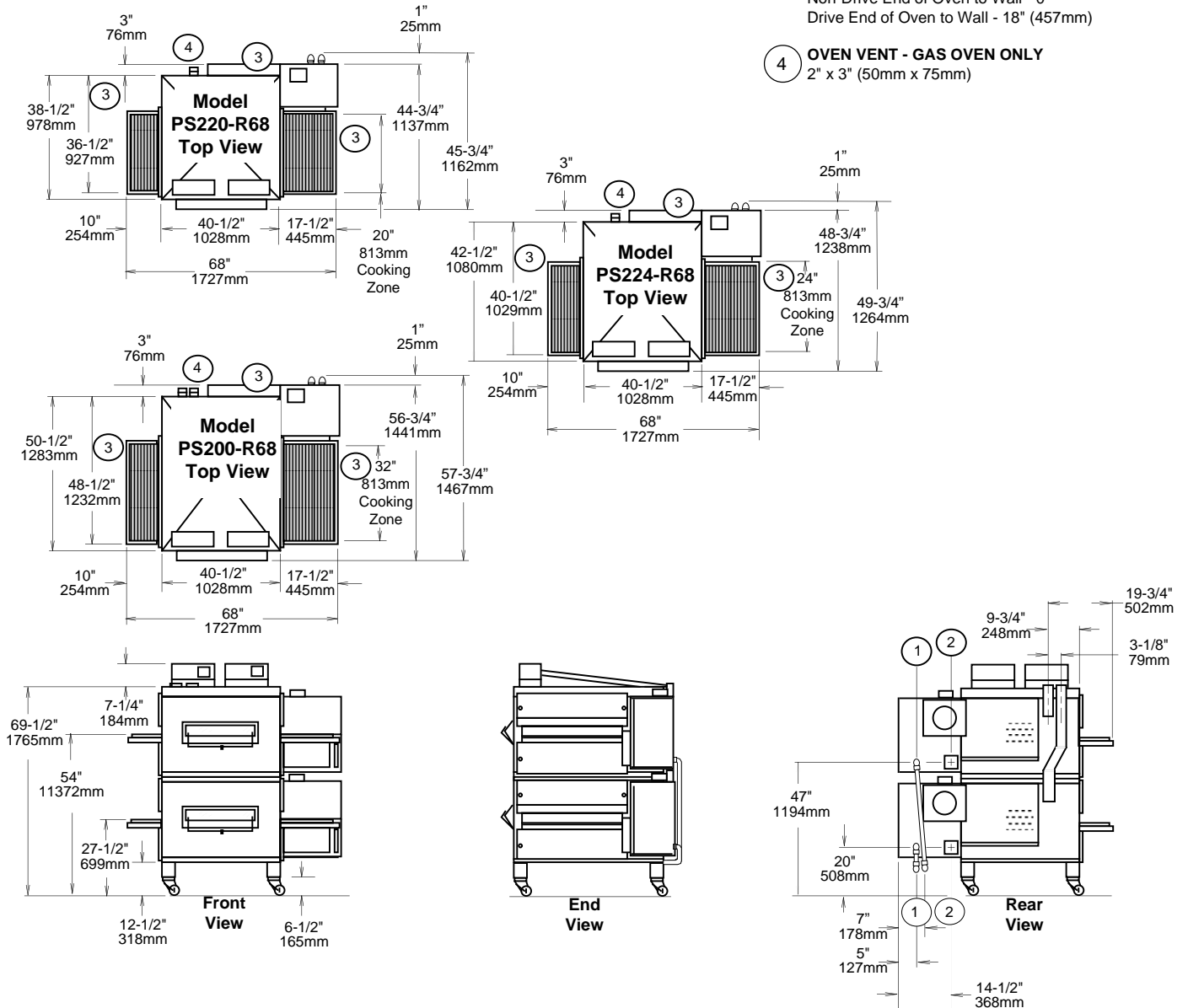


Figure 2-3. Series PS200-R68 Oven Dimensions

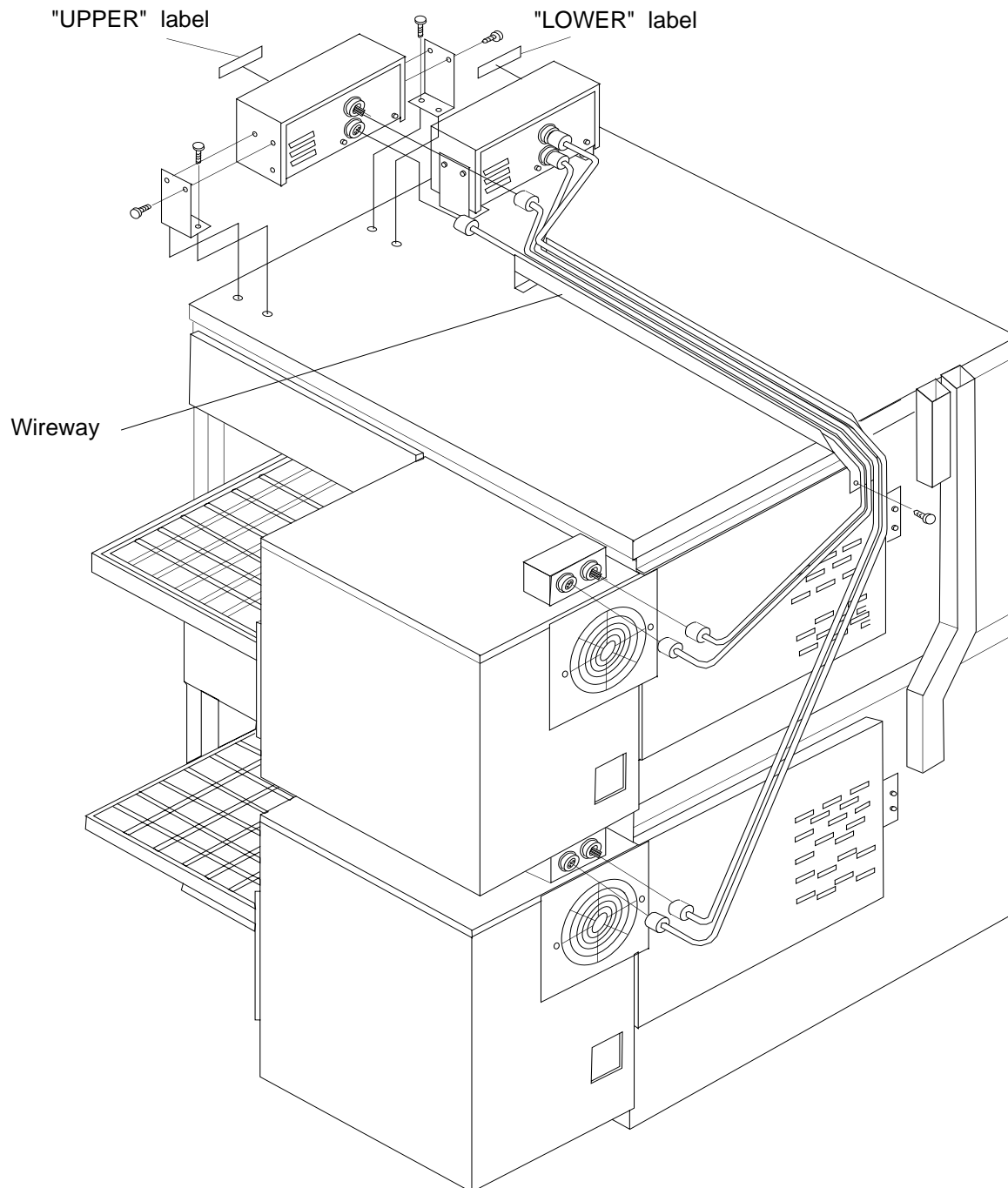
SECTION 2 INSTALLATION

II. CONTROL BOX AND CABLE INSTALLATION

CAUTION: When attaching cables turn the circuit breakers off.

A. Install the control boxes, wireway and cables as shown in Figure 2-5.

B. Install the "UPPER" and "LOWER" labels as shown.



**Figure 2-4. Control Box, Wireway and Cable
Installation**

III. FLUE VENT INSTALLATION

A. Install the flue vent: (Gas oven only)

NOTE: On a single oven the flue is factory mounted.

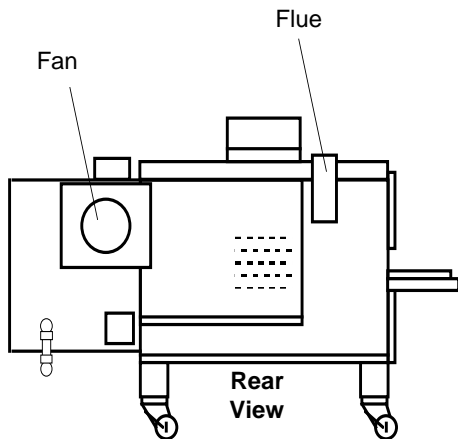


Figure 2-5. Single Oven Flue Installation

B. On a double oven install the flue extension and flue offset by sliding it down over the lower flue. Then attach both flues with the screws provided.

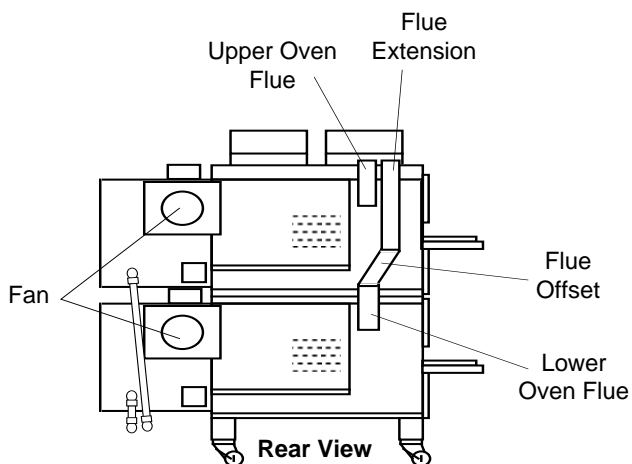


Figure 2-6. Double Oven Flue Installation

IV. RESTRAINT CABLE INSTALLATION

Install the restraint cable assembly on the oven as shown in Figure 2-7.

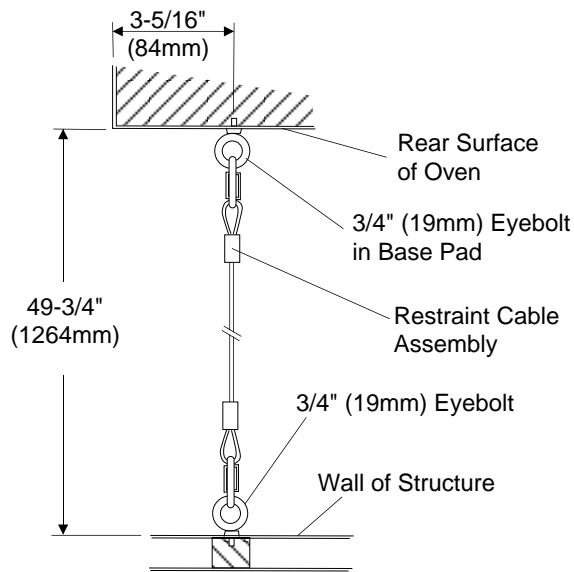
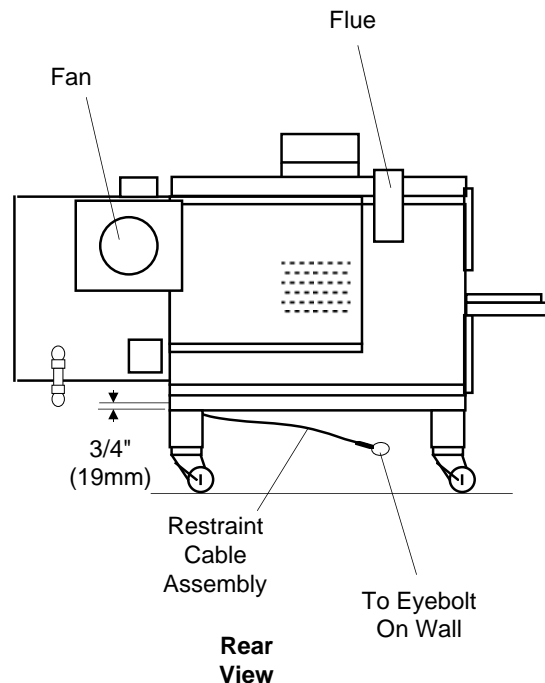


Figure 2-7. Restraint Cable Assembly Installation

GAS OVEN ROUGH-IN

UTILITY ROUGH-IN DIMENSIONS AND POSITIONING FOR PS200-R68 SERIES OVENS

CAUTION

IT IS REQUIRED THAT THE OVEN BE PLACED UNDER A VENTILATION HOOD FOR ADEQUATE AIR SUPPLY AND VENTILATION.

**GAS SUPPLY &
ELECTRICAL SUPPLY
PROVIDED BY CUSTOMER**

**DO NOT USE CONDUIT
FOR GROUND**

CIRCUIT BREAKER

15 Amp circuit breaker **with lockout/tagout electrical shutoff** for each cavity. Wire each cavity separately.

ELECTRICAL SPECIFICATIONS

DOMESTIC: 208-240V main blower motors, 1 Ph, 4.1 Amp draw, 50/60 Hz, 120V control circuit, 3 pole, 4 wire system per cavity (2 hot, 1 neut, 1 grd). Do not use conduit for ground.

or

EXPORT: 200-208V or 220-240V main blower motors, 1 Ph, 4.1 Amp draw, 50/60 Hz, 120V transformer control circuit, 2 pole, 3 wire system per cavity (2 hot, 1 grd). Do not use conduit for ground.

GAS RATING

Model PS200-R68 is 120,000 BTU/Hour (30,240 kcal), 35.1 kW/HR
Models PS224-R68 & 220-R68 are 100,000 BTU/Hour (25,200 kcal), 29.3 kW/HR

MINIMUM GAS METER RATING

450 Cu.Ft./Hour (12.74m³h) for 1 or 2 oven cavities.
Add 180 Cu.Ft./Hour (5.1m³h) for each additional cavity.
Minimum rating may not take other gas appliances into consideration. Gas consumption varies at each site. Total BTU/HR (kcal/hr) must be calculated on high flame off of each appliance to determine if meter needs to be larger.

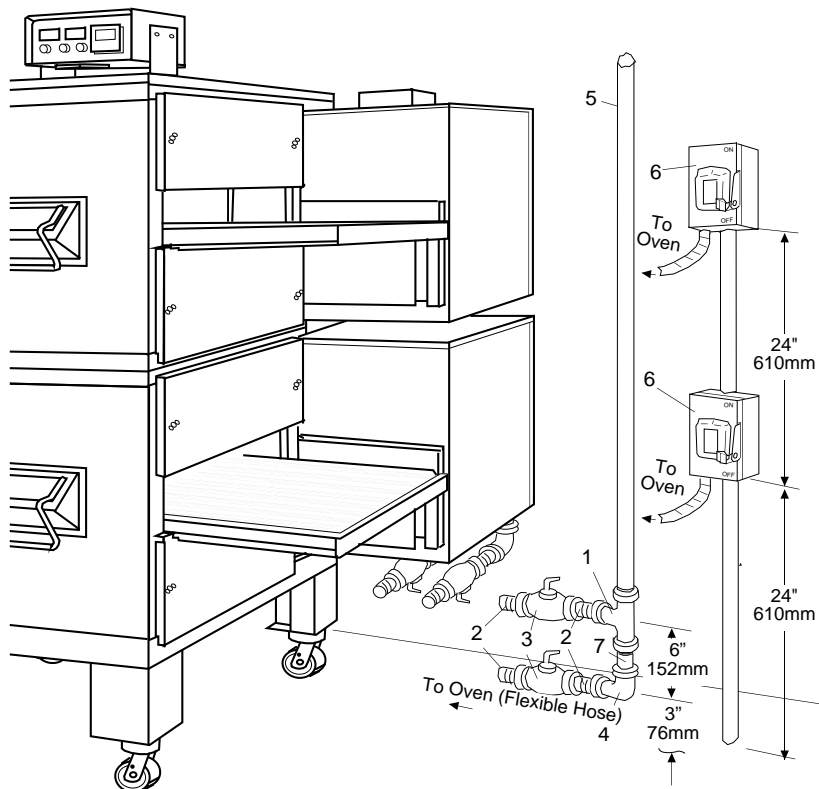
MINIMUM GAS PIPE SIZE

Natural: 2" (51mm) ID for 1 or 2 oven cavities with runs up to 200 ft.(61m).
or
2-1/2" (64mm) ID for 3 or 4 oven cavities with runs up to 200 ft.(61m)

Must be a dedicated line.
Runs over 200 ft. consult factory

Propane: 1-1/2" (38mm) ID for 1 or 2 oven cavities with runs up to 200 ft.(61m).
or
2" (51mm) ID for 3 or 4 oven cavities with runs up to 200 ft.(61m).

Must be a dedicated line.
Runs over 200 ft. consult factory



**Figure 2-8
Typical Installation**

GAS SHUTOFF VALVES

3/4" (19mm) ID full flow gas shut-off valve.
A separate connection and valve must be provided for each oven.

REQUIRED SUPPLY GAS PRESSURE

Natural: 6" to 14" (152 to 356mm) water column
Propane: 11.5" to 14" (290 to 356mm) water column

SUGGESTED

If space permits service should be located at the drive end of the ovens to allow access to switches and valves.

User Supplied Items:

ITEM	QTY	DESCRIPTION
1	1	2"(51mm) X 2"(51mm) X 3/4"(19mm) TEE
2	3	3/4"(19mm) X 3"(76mm) NIPPLE
3	2	3/4" (19mm) FULL FLOW GAS SHUT-OFF VALVE
4	1	2"(51mm) X 2"(51mm) 90° ELBOW
5	1	2"(51mm) ID GAS SUPPLY PIPE LINE -NATURAL GAS
6	2	15 AMP TOGGLE SWITCH - 2 POLE for GAS

ELECTRIC OVEN ROUGH-IN

UTILITY ROUGH-IN DIMENSIONS AND POSITIONING FOR PS200-R68 SERIES OVENS

<p>CAUTION</p> <p>IT IS REQUIRED THAT THE OVEN BE PLACED UNDER A VENTILATION HOOD FOR ADEQUATE AIR SUPPLY AND VENTILATION.</p>
<p>ELECTRICAL SUPPLY PROVIDED BY CUSTOMER</p>
<p>DO NOT USE CONDUIT FOR GROUND</p>

CIRCUIT BREAKER

Separate circuit breaker **with lockout/tagout electrical shutoff** for each cavity. Wire each cavity separately. 100 Amp circuit breaker for 200-240V, or 50 Amp circuit breaker for 380-480V.

ELECTRICAL SPECIFICATIONS

DOMESTIC: 208-240V main blower motors and elements, 3 Ph, 75 Amp draw, 50/60 Hz, 120V control circuit, 4 pole, 5 wire system per cavity (3 hot, 1 neut, 1 grd).

or

DOMESTIC: 220-240V main blower motors and elements, 3 Ph, 75 Amp draw, 50/60 Hz, 120V control circuit, 3 pole, 4 wire system per cavity (3 hot, 1 grd).

or

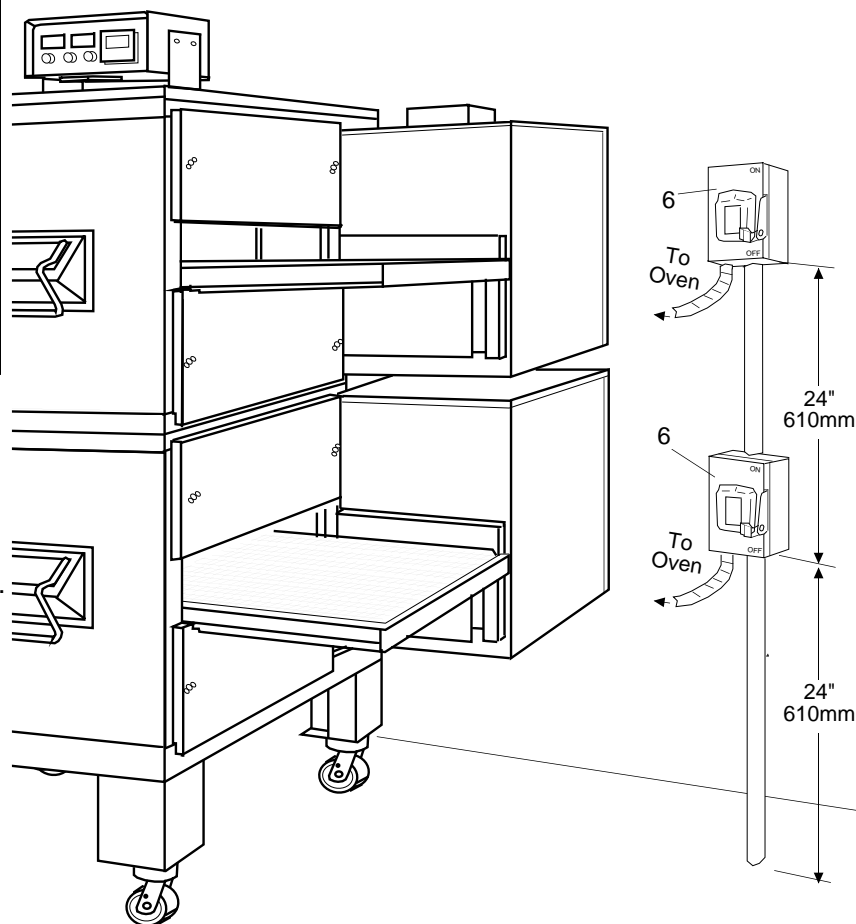
EXPORT: 380V or 400-416V main blower motors and elements, 3 Ph, 50 Amp, 50/60 Hz, 120V transformer control circuit, 4 pole, 5 wire system per cavity (3 hot, 1 neut, 1 grd).

ELECTRICAL RATING

26 kW/HR

SUGGESTED

If space permits service should be located at the drive end of the ovens to allow access to switches and valves.



**Figure 2-9
Typical Installation**

SECTION 2 INSTALLATION

V. VENTILATION GUIDELINES

A mechanically driven ventilation system is required for the PS200-R68 Series Middleby Marshall conveyorized gas ovens. The minimum hood canopy dimensions are outlined below.

Local codes and conditions vary greatly from one area to another and must be complied with. These are the "Authority having jurisdiction" as stated by the National Fire Protection Association, Inc. in NFPA 96-latest edition. Following are the suggested requirements for good ventilation. Please remember these are general recommendations or guidelines, you may have a special condition or problem that will require the services of a ventilation engineer or specialist. Proper ventilation is the oven owner's responsibility. Improper ventilation can inhibit oven performance. It is recommended that the ventilation and duct work be checked every three months.

Grease filters in the intake of the hood may be required by local codes.

VENTILATION HOOD

The rate of air flow exhausted through the ventilation system is generally between 1400 and 2500 CFM, but may vary depending on the oven configuration and hood design. To avoid a negative pressure condition in the kitchen area, return air must be brought back to replenish the air that was exhausted. A negative pressure in the kitchen can cause heat related problems to the oven components as if there were no ventilation at all. The best method of supplying return air is through the heating, ventilation and air conditioning system (HVAC). Through the HVAC system, the air can be temperature controlled

for summer and winter. Return air can be brought in directly from outside the building, but detrimental affects can result from either extreme seasonal hot and cold temperature from the outdoors.

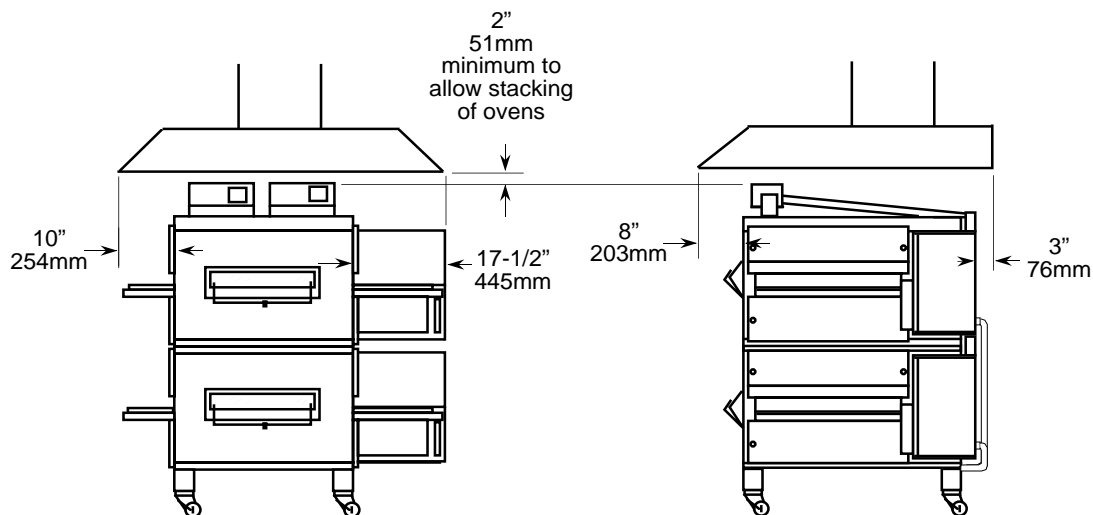
NOTE: Return air from fan driven system within the hood must not blow at opening of bake chamber or poor oven baking performance will result.

VENTILATION CAPTURE TEST

It is recommended that a 30 second smoke candle test be performed on your ventilation hood system. Follow the steps below to complete the ventilation smoke test.

All tests are to be done on single ovens or lower units of a double oven. We recommend you wear protective gloves when performing this test. At no time should food be present when the smoke test is being conducted. Also check that no fire suppression system will be activated by the smoke.

1. Turn ventilation system on.
2. Turn oven(s) on and allow to heat up to customers normal operating temperature, or a minimum of 480°F (248°C).
3. Turn conveyor off. Place a 30 second smoke candle in a pie or cake pan which is no higher than 3" (76mm).
4. Open the front oven window. Next, light the smoke candle in the pan and then slide the pan into the center of the bake chamber on the conveyor belt and close the window.
5. The ventilation hood should capture 90% to 100% of the smoke produced by the candle.



**Figure 2-10
Vent Hood**

VI. ELECTRIC SUPPLY FOR GAS HEATED OVENS

Electric supply for all gas heated ovens is 208-240 volts AC single phase. Each oven requires a separate 15 amp service. Connection is made as shown in Figures 2-8 & 2-12. A separate ground wire must also be supplied.

CAUTION: Before connecting incoming power to oven, a voltage reading of each leg to neutral must be made. These readings should not normally exceed 120 volts each.

If one of the incoming legs reads over 130 volts, this indicates the supply voltage has a high leg.

Export ovens are supplied with a stepdown transformer for the 110V control circuit.

Call your local electrician or electrical power supply company and have them remove the high leg from the electrical supply line for the oven.

Connecting a high leg to the black lead of the oven will severely damage many of the electrical components in the oven.

CONNECTING A HIGH LEG TO THE BLACK WIRE VOIDS ALL OVEN WARRANTIES.

Connect one 208-240V supply leg to the black wire and the other 208-240V supply leg to the red wire. The supply neutral should connect to the white oven wire and supply ground should connect to the oven ground screw located in the main junction box.

VII. ELECTRICAL CONNECTION INFORMATION FOR ALL OVENS.

Check the oven data plate before making any electrical connections. Connections must agree with data on oven data plate (Refer below to Figure 2-11).

NOTE: In Canada with C22.1, Part 1 and/or local code.


A fused disconnect switch or circuit breaker (not furnished) **MUST** be installed in the electrical supply line FOR EACH OVEN. A lockout/tagout electrical shutoff must be installed for each oven, refer to Figure 2-9. The service connection must meet all national and local electrical code requirements. All connections are made at one common connection at the back of each control box.

NOTE:
When the oven is installed it must be electrically grounded in accordance with local codes, or in the absence of local codes. ANSI/NFPA - Latest edition.

WARNING
OVEN MUST BE KEPT CLEAR OF COMBUSTIBLES AT ALL TIMES.

CAUTION
IT IS REQUIRED THAT THE OVEN BE PLACED UNDER A VENTILATION HOOD FOR ADEQUATE AIR SUPPLY AND VENTILATION

CAUTION:
The power burner will not operate and gas will not flow through the burner without electric power. No attempt should be made to operate the oven during power failure. This oven is to be operated only on the type of gas as shown on the specification data plate.





Middleby Marshall
A MIDDLEBY COMPANY

MODEL NO. SERIAL NO.
 ID NO. TYPE OF GAS
 INPUT BTU PER HOUR MAXIMUM
 MAN. PRESS. IN.W.C. WIRE WITH GROUND
 VAC AMPS AMPS HZ

SUITABLE FOR INSTALLATION ON COMBUSTIBLE FLOORS ADJACENT TO COMBUSTIBLE AND NONCOMBUSTIBLE WALLS WITH THE FOLLOWING MINIMUM CLEARANCES: ZERO INCHES TO LEFT SIDE WALL, EIGHTEEN INCHES TO RIGHT SIDE WALL, SIX INCHES TO BACK WALL.


"INTENDED FOR OTHER THAN HOUSEHOLD USE"
FOR INSTALLATION UNDER VENTILATING HOOD ONLY

ACCEPTED FOR USE
INTERNATIONAL
DEPARTMENT OF BUILDINGS
NEW YORK

MANUFACTURED UNDER U.S. PATENT NUMBERS 3,844,213 AND 4,154,861
 ELGIN, ILLINOIS, 60120, U.S.A. COMMERCIAL OVEN ANS Z 83.12 -

DATA PLATE FOR OVENS WITH THE MACHINERY/DRIVE COMPARTMENT LOCATED AT THE RIGHT END OF OVEN





Middleby Marshall
A MIDDLEBY COMPANY

MODEL NO. SERIAL NO.
 ID NO. TYPE OF GAS
 INPUT BTU PER HOUR MAXIMUM
 MAN. PRESS. IN.W.C. WIRE WITH GROUND
 VAC AMPS AMPS HZ

SUITABLE FOR INSTALLATION ON COMBUSTIBLE FLOORS ADJACENT TO COMBUSTIBLE AND NONCOMBUSTIBLE WALLS WITH THE FOLLOWING MINIMUM CLEARANCES: ZERO INCHES TO RIGHT SIDE WALL, EIGHTEEN INCHES TO LEFT SIDE WALL, SIX INCHES TO BACK WALL.

"INTENDED FOR OTHER THAN HOUSEHOLD USE"
FOR INSTALLATION UNDER VENTILATING HOOD ONLY

ACCEPTED FOR USE
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MANUFACTURED UNDER U.S. PATENT NUMBERS 3,844,213 AND 4,154,861
 ELGIN, ILLINOIS, 60120, U.S.A. COMMERCIAL OVEN ANS Z 83.12 -

DATA PLATE FOR OVENS WITH THE MACHINERY/DRIVE COMPARTMENT LOCATED AT THE LEFT END OF OVEN

Figure 2-11.
Oven Specification Data Plate Reference

SECTION 2 INSTALLATION

VIII. ELECTRIC SUPPLY FOR ELECTRICALLY HEATED OVENS

Electrically heated ovens are available in 208 or 240 volts, 5 wire, 3 phase only. They are pre-wired at the factory and only one common connection is necessary.

A standard oven is a 5 wire system (3 hot, 1 neut, 1 grd), it will not have a stepdown transformer. The neutral wire is combined with one 208-240 VAC, 3 phase leg to provide a 110V control circuit.

If the oven was special ordered for a 4 wire system, it will use a stepdown transformer for the 110V control circuit.

A 1-1/4" cutout is supplied on the rear of oven control box for the electrical connection. A 1-1/4" strain relief fitting must be used if flexible cable is used to run electrical supply.

Be sure wire size is adequate to handle amperage draw listed on data tag. **Use Copper Wire Only.**

Minimum Supply Conductor ampacity -- 95 Amps Per Unit.

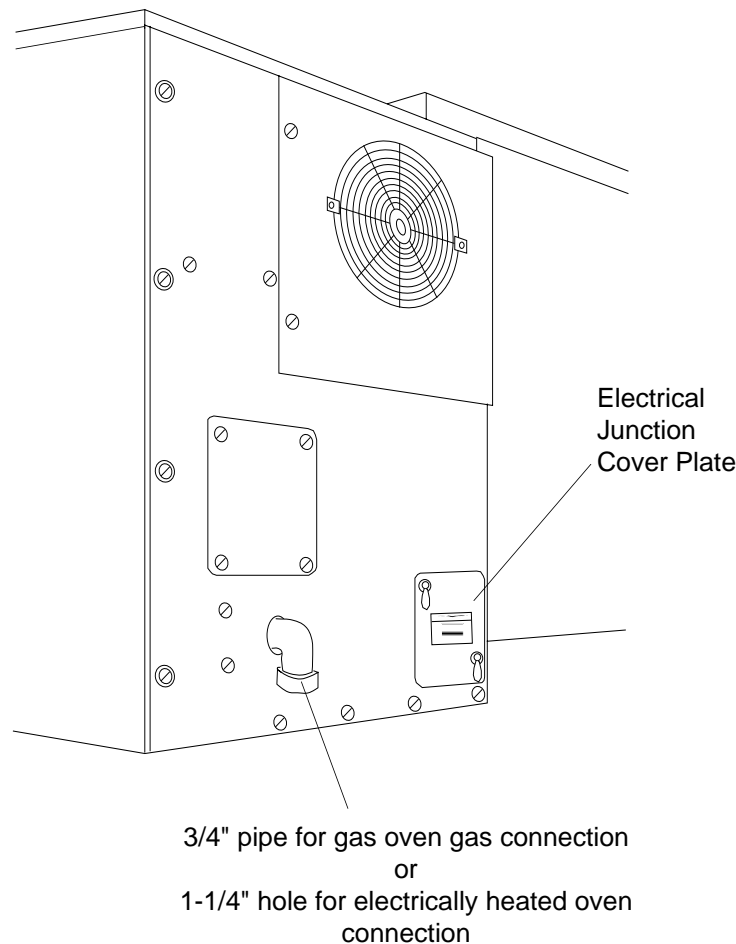
Maximum Supply Circuit protective device -- 100 Amps Per Unit

Normal electrical requirements are as follows:

PS200 Series Single - 208-240V, 3 phase, 5 wire, 27kw, 100 amp service.

PS200 Series Double Oven - 208-240, 3 phase, 5 wire, 54 kw, 2 separate 100 amp services, one for each oven.

FOR OTHER SERVICES CONSULT FACTORY.



**Figure 2-12
Junction Connection Box**

CAUTION

**DO NOT CONNECT BLACK
LEAD TO HIGH LEG
BLACK AND WHITE MUST
BE 120 VAC**

High Leg Warning tag located on cover of electrical connection box of gas heated ovens.

IX. GAS SUPPLY FOR GAS HEATED OVENS

Check identification plate located on machinery compartment (see Figure 2-11) to determine type of gas (Propane or Natural) to be used with the oven.

NOTE: If identification plate (Figure 2-11) is missing, natural or propane ovens can usually be determined by checking the manifold pressure rating on the gas combination valve. The rating for natural gas is 3-1/2" w.c. The rating for Propane gas is 10.5" w.c.

Install the manual shutoff valve(s) enclosed with the oven on the 3/4" gas connection pipe extending through the control compartment at rear of oven control box.

If the rear of the oven is installed close to the wall, install the 3/4" elbow on the 3/4" gas connection pipe coming out the rear of the oven and then install the manual shutoff valve(s). This will prevent kinking the connection hose.

The minimum and maximum incoming line flow pressures (when oven(s) and all other gas appliances are on high flame cycle) should be the following:

Natural Gas: 6.0"w.c. Minimum, 14"w.c. Maximum
Propane Gas: 11.5"w.c. Minimum, 14"w.c. Maximum

This incoming pressure reading can be taken by installing a gas pressure gauge in the inlet pressure tap of the main gas valve. See Figure 2-13. Outgoing pressure can be measured at the outlet pressure tap of the main gas valve.

Remember, the longer the pipe runs, the more pressure drops. One 90° elbow equals a 4 foot length of pipe.

NOTE

The installation must conform with local codes or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223, 1-latest edition

In Australia the installation must conform with AGA Code AG601 and with any requirements of the appropriate statutory authority.

CANADIAN:
CAN/CGA-B 149.1 Natural Gas Installation Code
CAN/CGA-B 149.2 Propane Installation Code

On ovens equipped with casters, the installation shall be made with a gas connector that complies with the standard for gas connectors for Moveable Gas Appliances, ANSI Z21.69-1987/CANI 6.10-88(or latest edition), and Addenda, Z21.69a-1989(or latest edition), and a quick disconnect device that complies with the standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41-1989/CANI 6.9M79(or latest edition), and cable restraint assembly (refer to Figure 2-7) must be provided to limit the movement of the oven without depending on the connector and the quick-disconnect device or its associated piping to limit oven movement.

When an oven is required to be removed from its installation for service, shut off the gas valve upstream of the gas connector. Disconnect gas connector, disconnect the restraining device, move oven for servicing.

When service is complete, place oven in original location, connect restraining cable device, connect gas connector, turn gas valve on. Follow standard start up procedure.

Refer below to determine what size gas pipe to run to the oven (NOTE: each oven requires maximum BTU usage of 120,000 BTU per hour for a PS200-R68 or 100,000 BTU per hour for a PS220-R68 and PS224-R68.) The maximum total for a Double Oven would be 240,000 BTU per hour for a PS200-R68 or 200,000 BTU per hour for a PS220-R68 and PS224-R68.

RECOMMENDED SUPPLY PIPE SIZE:

Natural-
2" (51mm) ID for 1 or 2 oven cavities with runs up to 200 ft.(61m).
or
2-1/2" (64mm) ID for 3 or 4 oven cavities with runs up to 200 ft.(61m)
Must be a dedicated line. Runs over 200 ft. consult factory.

Propane-
1-1/2" (38mm) ID for 1 or 2 oven cavities with runs up to 200 ft.(61m).
or
2" (51mm) ID for 3 or 4 oven cavities with runs up to 200 ft.(61m).
Must be a dedicated line. Runs over 200 ft. consult factory.

NOTE: The recommended pipe sizes are larger than usually required to eliminate any operation problems. It is much less expensive to make the initial installment large enough to do the job rather than redoing the job later.

GAS METER SIZE:
Minimum Gas Meter Size:
450 cu.ft./hour (3.2 liters/sec.) for single or double oven.
Add 180 cu.ft./hour (1.3 liters/sec.) for each additional cavity.

CAUTION

DURING PRESSURE TESTING NOTE THE FOLLOWING:

1. The oven and its individual manual shutoff valve (located at the left rear of the oven) must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of 1/2 psig (3.45 kPA). Turn OFF main gas shutoff valve or main gas supply line.
2. The oven must be isolated from the gas supply piping system by closing its individual manual shutoff valve located at the rear of the oven during any pressure testing of the gas supply piping system at test pressure equal to or less than 1/2 psig (3.45 kPA).

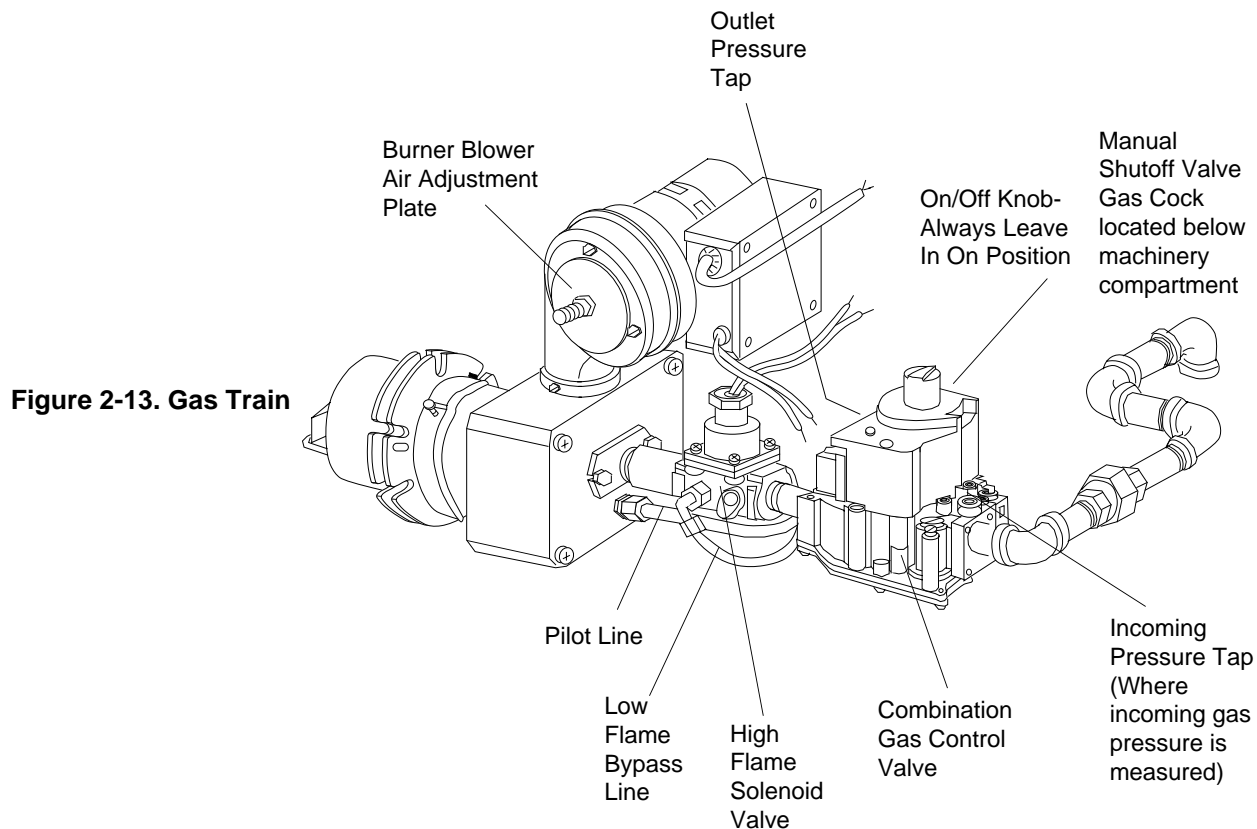
3. If incoming w.c. pressure is over 14" w.c. a separate regulator must be installed before the 3/4" manual gas shutoff valve located at the rear outside of the oven.

WARNING: TO PREVENT DAMAGE TO CONTROL VALVE REGULATOR DURING INITIAL TURN ON OF GAS, IT IS ***VERY IMPORTANT TO OPEN MANUAL SHUTOFF VALVE VERY SLOWLY.***

After the initial gas turn on, the manual shutoff valve must remain open except during pressure testing as outlined in the above steps or when necessary during service maintenance.

It is possible to convert ovens from natural gas to propane and back. Call your local authorized factory service agent to perform the conversion.

NOTE: In Canada to conform with CAN/CGA-B149.2 Propane Installation Code the oven must be ordered Propane, it may not be converted in the field.



X. CONVEYOR BACKSTOP AND END STOP INSTALLATION

Locate the conveyor backstop and end stop in the installation kit. Install the backstop and end stop at the exit end of the oven. Refer to Figure 2-14.

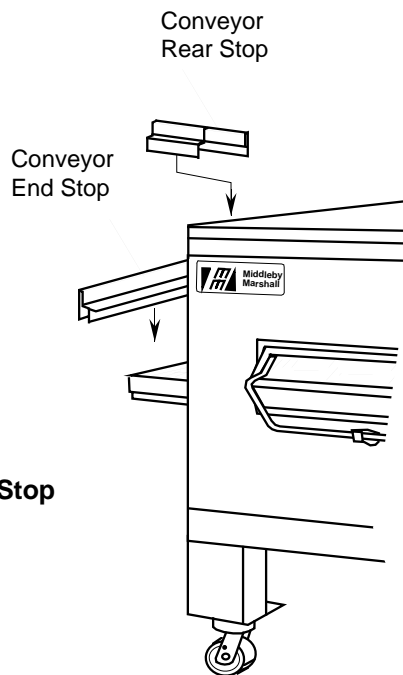


Figure 2-14.
Installing Backstop and End Stop

NOTES: