

PS570S Gas Oven

Model:

- PS570S

Combinations:

- Single Oven
- Double Oven (Two-Stack)
- Triple Oven (Three-Stack)
- Quad Oven (Four-Stack)

OWNER'S OPERATING & INSTALLATION MANUAL

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NOTICE:

This Owner's Operating and Installation Manual should be given to the user. The operator of the oven should be familiar with the functions and operation of the oven.

This manual must be kept in a prominent, easily reachable location near the oven.

Gas ovens are designed for use with EITHER natural gas OR liquid propane gas, as specified on the serial plate. Where permitted by local and national codes, the oven can be converted from natural gas to propane operation, or from propane to natural gas operation. This conversion requires the installation of the appropriate Middleby Marshall Gas Conversion Kit by an Authorized Service Agent.

It is suggested to obtain a service contract with a Middleby Marshall Authorized Service Agent.

WARNING

POST, IN A PROMINENT LOCATION, THE EMERGENCY TELEPHONE NUMBER OF YOUR LOCAL GAS SUPPLIER AND INSTRUCTIONS TO BE FOLLOWED IN THE EVENT YOU SMELL GAS.

Instructions to be followed in the event the user smells gas shall be obtained by consulting the local gas supplier. If the smell of gas is detected, immediately call the emergency phone number of your local Gas Company. They will have personnel and provisions available to correct the problem.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

WARNING:

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

IMPORTANT

An electrical wiring diagram for the oven is located inside the machinery compartment.

IMPORTANT

It is the customer's responsibility to report any concealed or non-concealed damage to the freight company. Retain all shipping materials until it is certain that the equipment has not suffered concealed shipping damage.

NOTICE: CONTACT YOUR MIDDLEBY MARSHALL AUTHORIZED SERVICE AGENT TO PERFORM MAINTENANCE AND REPAIRS. AN AUTHORIZED SERVICE AGENCY DIRECTORY IS SUPPLIED WITH YOUR OVEN.

NOTICE: Using any parts other than genuine Middleby Marshall factory manufactured parts relieves the manufacturer of all warranty and liability.

NOTICE: Middleby Marshall (Manufacturer) reserves the right to change specifications at any time.

NOTICE: The equipment warranty is not valid unless the oven is installed, started and demonstrated under the supervision of a factory certified installer.

Retain This Manual For Future Reference

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TABLE OF CONTENTS

	<i>page</i>		<i>page</i>
SECTION 1 - DESCRIPTION	4	V. FINAL ASSEMBLY	11
I. OVEN COMPONENTS	4	VI. ELECTRICAL SUPPLY	11
A. Conveyor Drive Motor	4	VII. GAS SUPPLY	11
B. Crumb Pans	4	A. Gas Utility Rough-In Recommendations	12
C. Conveyor End Stop	4	B. Connection	12
D. Conveyor Rear Stop	4	C. Gas Conversion	12
E. Conveyor	4		
F. End Plugs	4	SECTION 3 - OPERATION AND TROUBLESHOOTING	13
G. Eyebrows	4	I. LOCATION AND DESCRIPTION OF CONTROLS	13
H. Window	4	A. BLOWER (☼) Switch	13
I. Machinery Compartment Access Panel	4	B. HEAT (☼) Switch	13
J. Control Panel	4	C. CONVEYOR (☼) Switch	13
K. Serial Plate	4	D. Conveyor Speed Controller	13
L. Gas Burner	4	E. Digital Temperature Controller	13
M. Blowers	4	F. Machinery Cpt. Access Panel Safety Switch	13
N. Air Fingers	4	II. NORMAL OPERATION, STEP-BY-STEP	14
II. OVEN SPECIFICATIONS	4	A. Daily Startup Procedure	14
A. Dimensions	4	B. Daily Shutdown Procedure	14
B. General Specifications	4	III. QUICK REFERENCE: DIGITAL TEMPERATURE CONTROLLER	15
C. Gas Orifice and Pressure Specifications	4	IV. QUICK REFERENCE: TROUBLESHOOTING	16
D. Electrical Specifications	4		
SECTION 2 - INSTALLATION	5	SECTION 4 - REGULAR MAINTENANCE	17
I. INSTALLATION KIT	7	I. MAINTENANCE - DAILY	17
II. BASE PAD KIT	7	II. MAINTENANCE - MONTHLY	18
III. VENTILATION SYSTEM	8	III. MAINTENANCE - EVERY 3 MONTHS	19
A. Requirements	8	IV. MAINTENANCE - EVERY 6 MONTHS	20
B. Recommendations	8	V. KEY SPARE PARTS KIT	21
C. Other Ventilation Concerns	8		
IV. ASSEMBLY	9	SECTION 5 - ELECTRICAL WIRING DIAGRAM	22
A. Base Pad, Legs, Casters, and Stacking	9		
B. Restraint Cable Installation	9		
C. Conveyor Installation	9		

SECTION 1 - DESCRIPTION

I. OVEN COMPONENTS - see Figure 1-1.

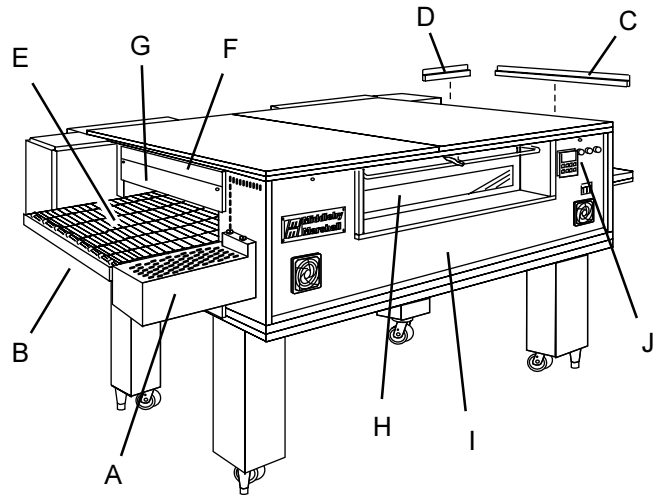
- A. **Conveyor Drive Motor:** Moves the conveyor.
- B. **Crumb Pans:** Catch crumbs and other material that drop through the conveyor belt. One crumb pan is located at each end of the conveyor.
- C,D. **Conveyor End Stop and Rear Stop:** Prevent food products from falling off the end or rear of the moving conveyor.
- E. **Conveyor:** Moves the food product through the oven.
- F. **End Plugs:** Allow access to the oven's interior.
- G. **Eyebrows:** Can be adjusted to various heights to prevent heat loss into the environment.
- H. **Window:** Allows the user to see and access food products inside the baking chamber.
- I. **Machinery Compartment Access Panel:** Allows access to the oven's interior and control components. No user-servicable parts are located in the machinery compartment.
- J. **Control Panel:** Location of the operating controls for the oven.

Not Shown:

- K. **Serial Plate:** Provides specifications for the oven that affect installation and operation.

- L. **Gas Burner:** Heats air, which is then projected to the air fingers by the blowers.
- M. **Blowers:** Project hot air from the burner to the air fingers.
- N. **Air Fingers:** Project streams of hot air onto the food product.

Figure 1-1 - Oven Components



II. OVEN SPECIFICATIONS

Table 1: Dimensions	Single Oven	Double Oven	Triple Oven	Quad Oven
Overall Height (inc. top and legs, as appropriate)	46-1/8" (1172mm)	60-1/8" (1527mm)	62-1/2" (1588mm)	78" (1981mm)
Overall Depth (inc. rear shrouds)	61-3/4" (1568mm)	61-3/4" (1568mm)	61-3/4" (1568mm)	61-3/4" (1568mm)
Overall Length	106" (2692mm)	106" (2692mm)	106" (2692mm)	106" (2692mm)
Conveyor Width	32" (813mm) or 2x15" (381mm)	32" (813mm) or 2x15" (381mm)	32" (813mm) or 2x15" (381mm)	32" (813mm) or 2x15" (381mm)
Recommended Minimum Clearances				
Rear of Oven (inc. rear shrouds) to Wall	0mm	0mm	0mm	0mm
Conveyor Extension to Wall (both ends)	0mm	0mm	0mm	0mm

Table 2: General Specifications (per oven cavity)

Weight	1400 lbs. (634kg)
Shipping Weight	1750 lbs. (780kg)
Shipping Cube	160.3 ft ³ (4.53m ³)
Rated Heat Input	170,000 BTU (42,840 kcal, 50 kW/hr)
Maximum Operating Temperature	550°F / 288°C
Air Blowers	Two blowers at 1400 ft. ³ /min. (39.6m ³ /min.) at 2050 RPM, 0.40" (1.0cm) Water Static Pressure
Average Air Jet Velocity	2600 ft./min. (1320cm/sec.) average
Warmup Time	15 min.

Table 3: Gas orifice and pressure specifications (per oven cavity)

Gas Type	Main Orifice I.D.	Pilot Orifice I.D.	Supply (Inlet) Pressure	Orifice (Manifold) Pressure
Natural	0.250" (6.35mm)	0.028" (0.71mm)	6-12" W.C. (14.9-29.9mbar)	3.5" W.C. (8.7mbar)
Propane	0.152" (3.86mm)	0.018" (0.46mm)	11-14" W.C. (27.4-34.9mbar)	10" W.C. (24.9mbar)

Table 4: Electrical specifications (per oven cavity)

Main Blower Voltage	Control Circuit Voltage	Phase	Freq	Current Draw	Poles	Wires
208-240V	120V (w/transformer)	1 Ph	50/60Hz	12A	3 Pole	4 Wire (2 hot, 1 neut, 1 gnd)

IMPORTANT: Additional electrical information is provided on the oven's serial plate, and on the wiring diagram inside the machinery compartment.

SECTION 2 - INSTALLATION

WARNING - For gas ovens, after any conversions, readjustments, or service work on the oven:

- Perform a gas leak test.
- Test for correct air supply.
- Test for proper combustion and gas supply.
- Check that the ventilation system is in operation.

WARNING

Keep the appliance area free and clear of combustibles.

WARNING

The oven must be installed on an even (level) non-flammable flooring and any adjacent walls must be non-flammable. Recommended minimum clearances are specified in the *Description* section of this Manual.

WARNING

Do not obstruct the flow of combustion and ventilation air to and from your oven. There must be no obstructions around or underneath the oven. Constructional changes to the area where the oven is installed shall not affect the air supply to the oven.

CAUTION

For additional installation information, contact your local Authorized Service Agent.

NOTE

There must be adequate clearance between the oven and combustible construction. Clearance must also be provided for servicing and for proper operation.

NOTE

An electrical wiring diagram for the oven is located inside the machinery compartment.

NOTE

All aspects of the oven installation, including placement, utility connections, and ventilation requirements, must conform with any applicable local, national, or international codes. These codes supersede the requirements and guidelines provided in this manual.

NOTE

In the USA, the oven installation must conform with local codes. In the absence of local codes, gas oven installations must conform with the National Fuel Gas Code, ANSI Z223.1. Gas ovens, when installed, must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code (NEC), or ANSI/NFPA70.

NOTE

In Canada, the oven installation must conform with local codes. In the absence of local codes, gas oven installations must conform with the Natural Gas Installation Code, CAN/CGA-B149.1, or the Propane Gas Installation Code, CAN/CGA-B149.2, as applicable. Gas ovens, when installed, must be electrically grounded in accordance with local codes, or in the absence of local codes, with the Canadian Electrical Code CSA C22.2.

NOTE

In Australia, the oven installation must conform with any requirements of the appropriate statutory authority. Gas oven installations must conform with AGA Code, AG601.

Figure 2-1 - Installation Kit

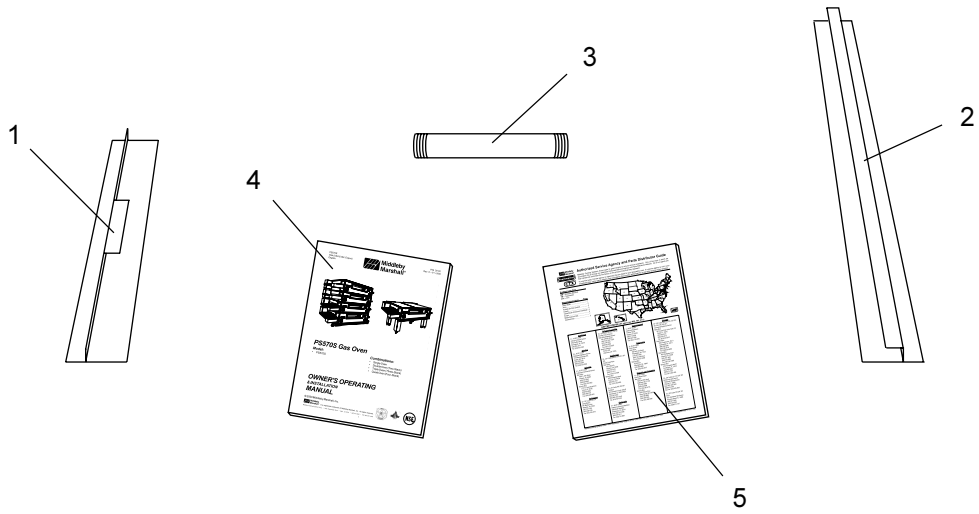
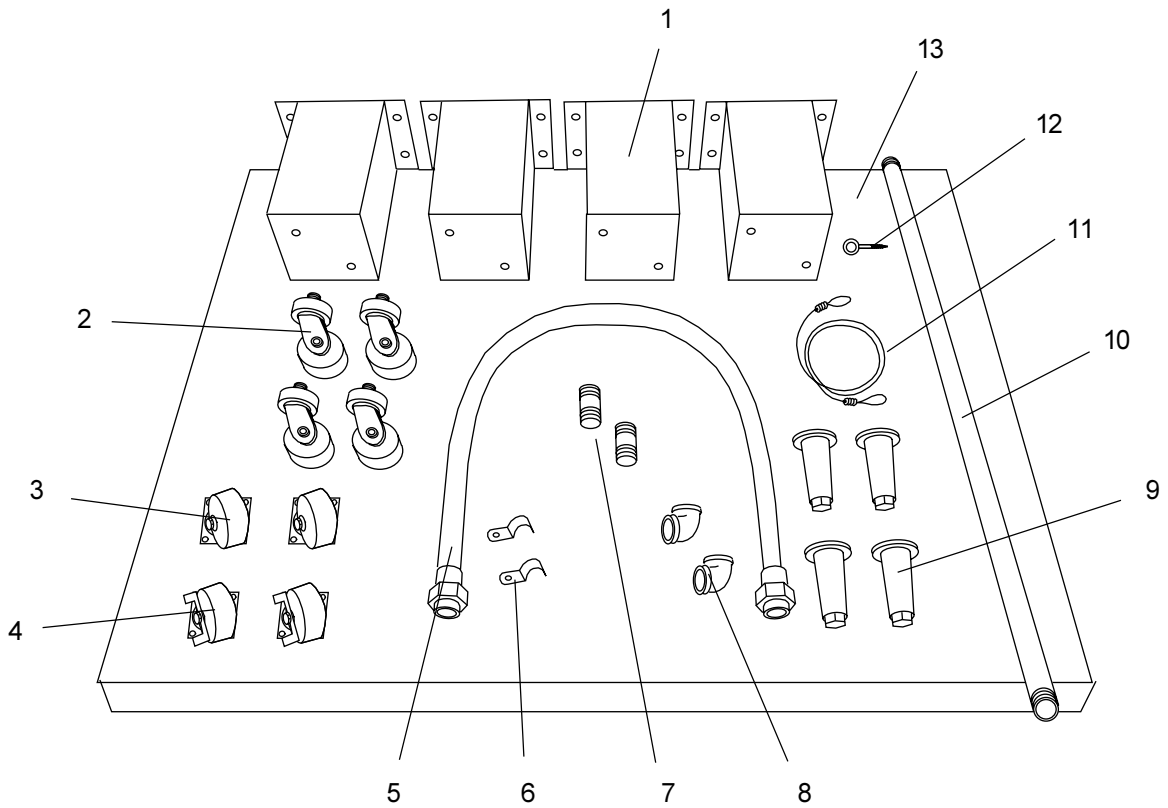


Figure 2-2 - Base Pad Kit



I. INSTALLATION KIT - see Figure 2-1**NOTE:** One Installation Kit is required for each oven cavity.

Item	Qty.	Part No.	Description
1	1	35900-0148	Conveyor rear stop
2	1	35000-1103	Conveyor end stop
3	1	33120-0053	Gas pipe nipple
4	1	39141	Owner's Operating and Installation Manual, PS570S Gas Ovens
5	1	1002040	Middleby Marshall Authorized Service Agency Listing

II. BASE PAD KIT - see Figure 2-2**NOTE:** One Base Pad Kit is required for each Single, Double, Triple, or Quad Oven installation.

Item	Qty.					Part No.	Description
	Single oven	Double oven with 10" legs	Double oven with 15" legs	Triple oven	Quad oven		
1a	4	--	--	--	--	37210-0060	Leg extension, 19" (483mm)
1b	--	4	--	--	--	37210-0082	Leg extension, 10" (254mm)
1c	--	--	4	--	--	37210-0057	Leg extension, 15" (381mm)
2	4	4	4	4	--	37115-0102	Caster, swivel, with 3/4" mounting stud
3	--	--	--	--	2	22290-0010	Caster, swivel, with flat mounting plate
4	--	--	--	--	2	22290-0009	Caster, swivel, with flat mounting plate and brake
5	1	1	1	1	1	22361-0003	Flexible gas hose, 1-1/4" dia. X 72" (1829mm) L
6	2	2	2	2	2	27271-0004	Pipe clamp, 1-1/2"
7	2	2	2	2	2	33120-0055	Nipple, 1-1/4" dia. X 3" (76mm) L, NPT
8	2	2	2	2	2	23122-0007	Elbow, 90°, 1-1/4" dia.
9	4	4	4	4	--	22450-0028	Adjustable leg, 6" (152mm)
10	1	1	1	1	1	33120-0056	Gas pipe, 1-1/4" dia. X 54" (1372mm) L
11	1	1	1	1	1	22450-0253	Restraint cable, 60" (1524mm) L
12	1	1	1	1	1	21392-0005	Eyebolt
13	1	1	1	1	1	37210-0055	Base pad
--	2	2	2	2	2	35210-0656	Top cover (Right or Left)
--	8	8	8	8	8	21256-0069	Screw, slt trs hd, #10-32 X 1-1/4"
--	2	2	2	2	2	21292-0001	Screw, hex washer hd, #10-16 X 3/4"
--	16	16	16	--	8	21216-0018	Bolt, hex cap, 1/2"-13 X 1-1/4"
--	16	16	16	--	8	21416-0003	Flat washer, 1/2"
--	16	16	16	--	8	21426-0004	Lock washer, 1/2"
--	--	--	--	--	16	21216-0001	Bolt, hex cap, 3/8"-16 X 1"

III. VENTILATION SYSTEM

IMPORTANT

Where national or local codes require the installation of fire suppression equipment or other supplementary equipment, DO NOT mount the equipment directly to the oven.

MOUNTING SUCH EQUIPMENT ON THE OVEN MAY:

- VOID AGENCY CERTIFICATIONS
- RESTRICT SERVICE ACCESS
- LEAD TO INCREASED SERVICE EXPENSES FOR THE OWNER

A. Requirements

CAUTION

Gas oven installations REQUIRE a mechanically driven ventilation system with electrical exhaust air sensing control.

PROPER VENTILATION OF THE OVEN IS THE RESPONSIBILITY OF THE OWNER.

B. Recommendations

NOTE THAT THE HOOD DIMENSIONS SHOWN IN FIGURE 2-3 ARE RECOMMENDATIONS ONLY. LOCAL, NATIONAL, AND INTERNATIONAL CODES MUST BE FOLLOWED WHEN INSTALLING THE VENTILATION SYSTEM. ANY APPLICABLE

CODES SUPERSEDE THE RECOMMENDATIONS SHOWN IN THIS MANUAL.

The rate of air flow exhausted through the ventilation system may vary depending on the oven configuration and hood design. Consult the hood manufacturer or ventilation engineer for these specifications.

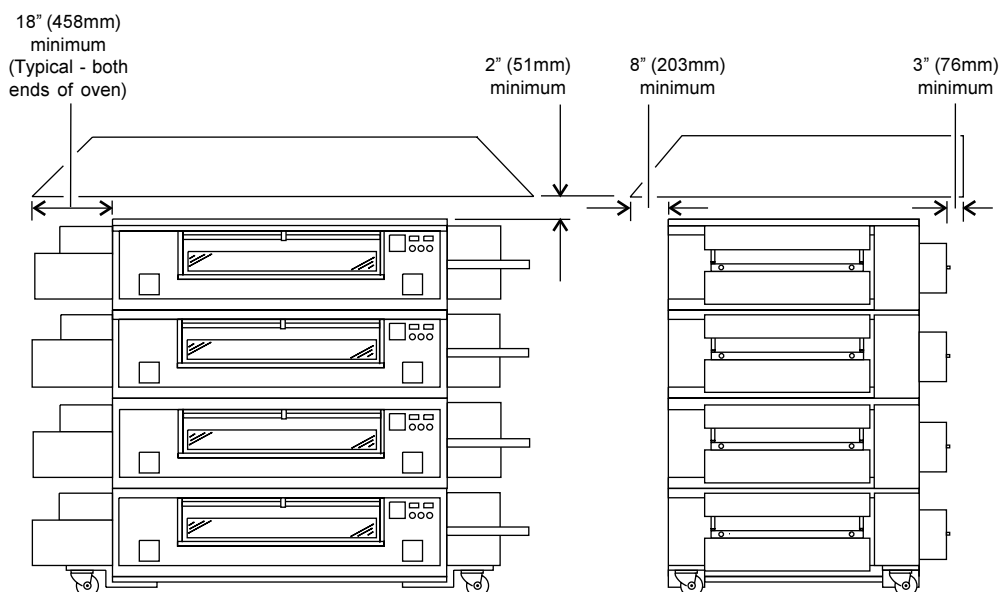
To avoid a negative pressure condition in the kitchen area, return air must be brought back to replenish the air that was exhausted. A negative pressure in the kitchen can cause heat-related problems to the oven components as if there were no ventilation at all. The best method of supplying return air is through the heating, ventilation and air conditioning (HVAC) system. Through the HVAC system, the air can be temperature-controlled for summer and winter. Return air can also be brought in directly from outside the building, but detrimental effects can result from extreme seasonal hot and cold temperatures from the outdoors.

NOTE: Return air from the mechanically driven system must not blow at the opening of the baking chamber. Poor oven baking performance will result.

C. Other ventilation concerns

- Special locations, conditions, or problems may require the services of a ventilation engineer or specialist.
- Inadequate ventilation can inhibit oven performance.
- It is recommended that the ventilation system and duct work be checked at prevailing intervals as specified by the hood manufacturer and/or HVAC engineer or specialist.

Fig. 2-3 - Ventilation System



IV. ASSEMBLY

A. Base Pad, Legs, Casters, and Stacking

NOTE: Optional Stacking Lift Kit (P/N 30580)

The Stacking Lift Kit, P/N 30580, is available separately. This Kit provides a complete lift adapter set, specifically designed for stacking PS570S oven cavities. The Kit includes an instructional videotape.

1. Install the top panels in place on the top oven cavity. Follow the instructions provided with the top panels.
- 2a. *Legs/Casters Installation - Single and Double Ovens*
 - Install one leg extension to each corner of the base pad using the 1/2"-13x1-1/4" bolts, 1/2" flat washers, and 1/2" lockwashers supplied in the Installation Kit. See Figure 2-3.
 - Install one adjustable leg and one caster into the holes on the bottom of the leg extension. The adjustable leg should be installed into the OUTSIDE hole (closest to the front or rear face of the oven). The caster should be installed into the INSIDE hole.

2b. *Legs/Casters Installation - Triple Ovens*

Install one adjustable leg and one caster into the 3/4" holes on the bottom of the base pad, as shown in Figure 2-5. The adjustable leg should be installed into the OUTSIDE hole (closest to the front or rear face of the oven). The caster should be installed into the INSIDE hole.

2c. *Legs/Casters Installation - Quad Ovens*

- Install one outrigger to each corner of the base pad using the 1/2"-13x1-1/4" bolts, 1/2" flat washers, and 1/2" lockwashers supplied in the Installation Kit. See Figure 2-6.
 - Install the casters onto the outriggers using the 3/8"-16x1" screws, 3/8" flat washers, and 3/8" lockwashers supplied in the Installation Kit. The two locking casters should be installed on the front side of the oven.
3. Install the base pad onto the lower oven cavity. Check that the eyebolt welded onto the pad faces the rear of the oven.
 4. Stack the oven cavities. If necessary, refer to the instructional videotape provided with the Stacking Lift Kit (P/N 30580).

B. Restraint Cable Installation

Because the oven is equipped with casters, a restraint cable assembly must be installed to limit the movement of the appliance without depending on the connector and the quick disconnect device or its associated piping. One end of the cable is anchored to the eyebolt on the rear surface of the oven's base pad, while the other is anchored to the wall. See Figure 2-7.

After connecting the restraint cable, move the oven to its final location. For single, double, and triple ovens, adjust the 6" (152mm) legs so that the casters are off the floor. For quad ovens, lock the two front casters.

C. Conveyor Installation

NOTE

Split belt conveyors can only be installed from the end of the oven with the drive motor.

Single-belt conveyor assemblies may be inserted into either end of the oven. If it is to be installed from the end of the oven without the drive motor, the drive sprocket assembly must be removed.

To remove the drive sprocket (if necessary), loosen the set screw on the conveyor collar as shown in Figure 2-8. Then, pull the sprocket assembly straight out.

Figure 2-4 - Legs and Casters for Single or Double Oven

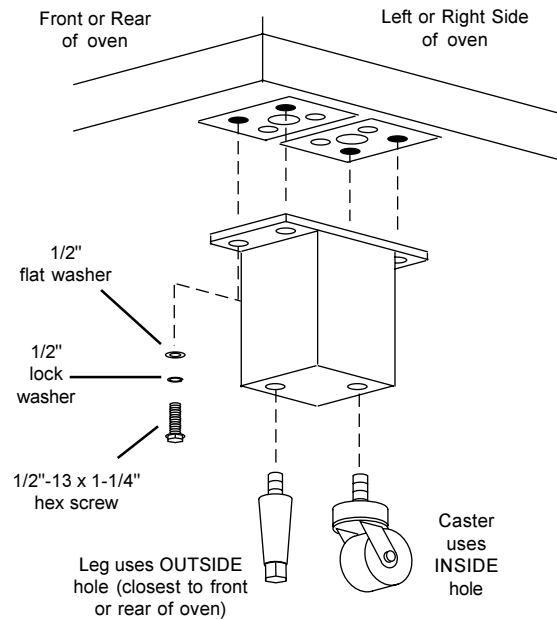


Figure 2-5 - Legs and Casters for Triple Oven

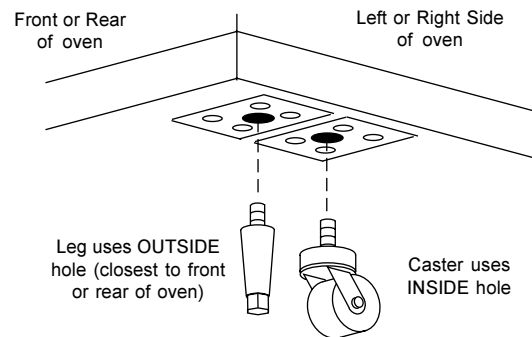
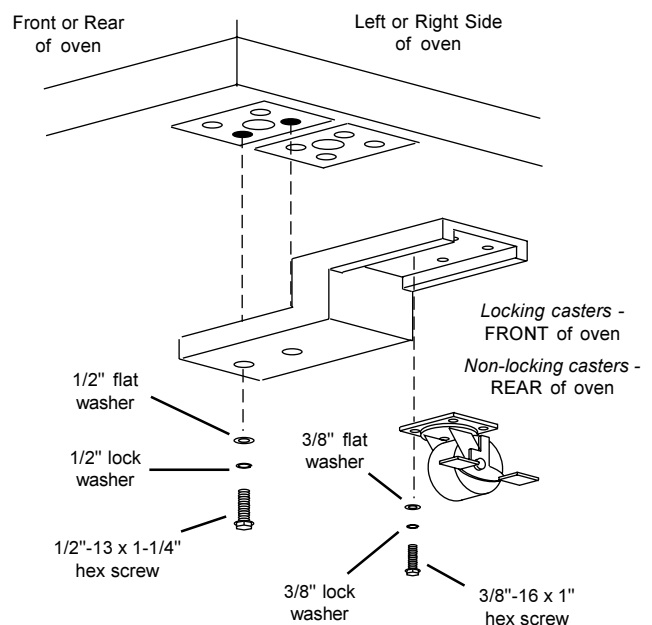


Figure 2-6 - Legs and Casters for Quad Oven



SECTION 2 - INSTALLATION

1. Lift the conveyor and position it in the oven as shown in Figure 2-9.
2. Continue moving the conveyor into the oven until the frame protrudes equally from each end of the oven (about 18"/457mm).
3. Check that the retainers located on the underside of the conveyor frame rest firmly against the lower end plugs, as shown in Figure 2-9.
4. When the conveyor is positioned properly, check for freedom of movement of the conveyor belt by pulling it for about 2-3 feet (60 to 90 cm) with your fingers. The conveyor must move freely.
5. If the drive sprocket was removed when installing the conveyor, replace it at this time.
6. Install the drive chain between the conveyor drive sprocket and the motor sprocket. To install the chain, it will be necessary to lift the drive end of the conveyor slightly.
7. Install the conveyor drive motor cover.
8. Check the tension of the conveyor belt as shown in Figure 2-10. The belt should lift between 3-4" (75-100mm). **DO NOT OVERTIGHTEN THE CONVEYOR BELT.**

NOTE:

If necessary, the belt tension can be adjusted by turning the conveyor adjustment screws, located at the idler (right) end of the conveyor. See Figure 2-10.

9. If necessary, links can be added to or removed from the conveyor belt to achieve the correct deflection of 3-4" (75-100mm). If links must be removed from the belt, it can be reattached to the conveyor as follows:
 - a. The conveyor belt links must be oriented as shown in Figure 2-11.
 - b. The smooth side of the conveyor belt must face UP.
 - c. Connect the inside master links. Check that the links are oriented as shown in Figure 2-11.
 - d. Connect the outside master links. Note that the outside master links have right and left sides. The right-side master link has an open hook facing you, as shown in Figure 2-11.
 - e. Check for freedom of movement of the conveyor belt by pulling it for about 2-3 feet (60 to 90 cm) with your fingers. The conveyor must move freely.
 - f. Return to Step 8, above, to re-check the belt tension.

Figure 2-7 - Installing the Restraint Cable

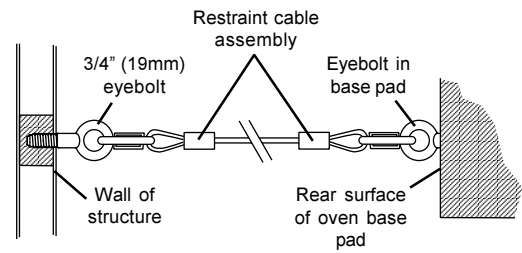


Figure 2-8 - Removing the Conveyor Drive Sprocket

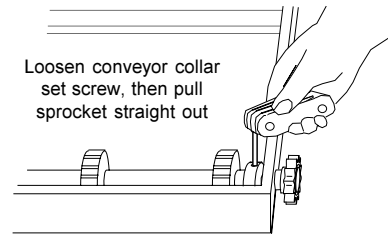


Figure 2-9 - Inserting the Conveyor

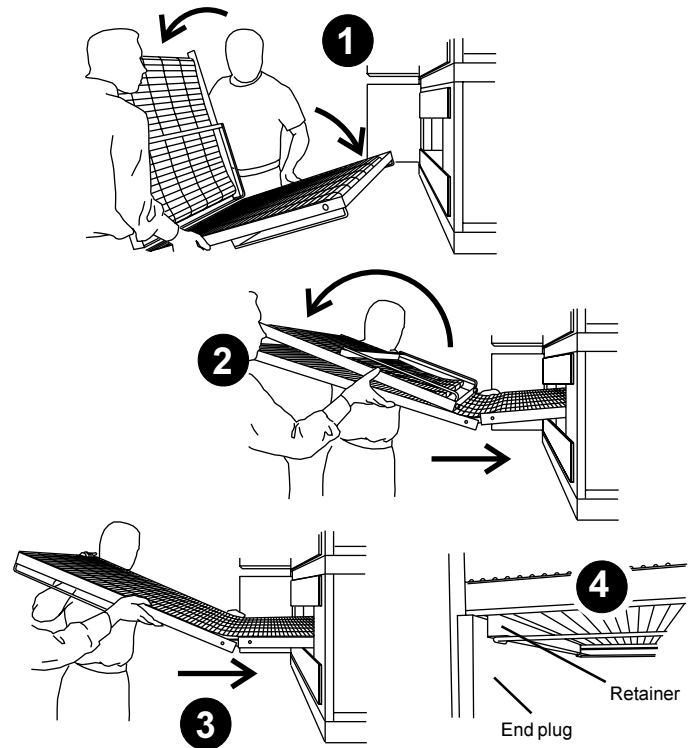


Figure 2-10 - Checking the conveyor tension

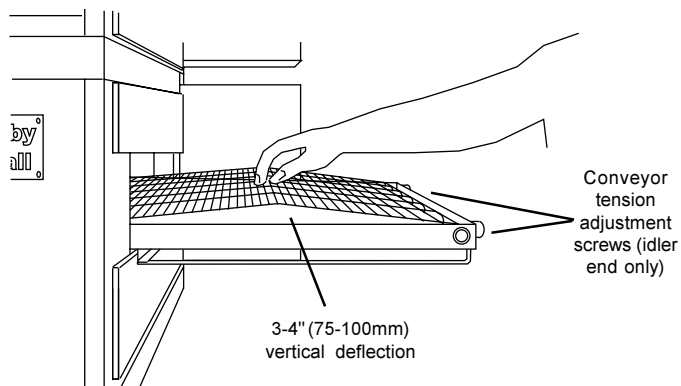
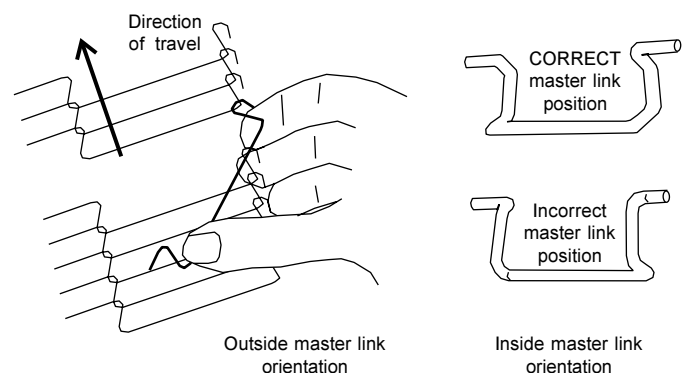


Figure 2-11 - Conveyor and Master Link Orientation



V. FINAL ASSEMBLY

1. Refer to Figure 2-12 to determine the correct locations of the crumb trays.
2. Install the crumb trays underneath the conveyor as shown in Figure 2-12. First, place the inside edge of the tray onto the retainer. Then, swing the outside edge of the tray up and into place.
3. Press the conveyor end stop and rear stop down over the edge of the conveyor frame.

VI. ELECTRICAL SUPPLY

WARNING Authorized supplier personnel normally accomplish the connections for the ventilation system, electric supply, and gas supply, as arranged by the customer. Following these connections, the factory-authorized installer can perform the initial startup of the oven.

NOTE: The electric supply installation must satisfy the requirements of the appropriate statutory authority, such as the National Electrical Code (NEC), ANSI/NFPA70, (U.S.A.); the Canadian Electrical Code, CSA C22.2; the Australian Code AG601; or other applicable regulations.

NOTE: The electric supply connection must meet all national and local electrical code requirements.

Check the oven serial plate before making any electric supply connections. Electric supply connections must agree with data on the oven serial plate.

A fused disconnect switch or a main circuit breaker (customer furnished) **MUST** be installed in the electric supply line for each oven cavity. It is recommended that this switch/circuit breaker have lockout/tagout capability.

The supply conductors must be of the size and material (copper) recommended. Refer to the wiring diagram inside the machinery compartment of the oven. Electrical specifications are also listed on the oven's serial plate.

The oven requires a ground connection to the oven ground screw located in the electrical junction box. (The box is shown in Figure 2-13.) If necessary, have the electrician supply the ground wire. **Do NOT use the wiring conduit or other piping for ground connections!**

VII. GAS SUPPLY

CAUTION

DURING PRESSURE TESTING NOTE ONE OF THE FOLLOWING:

1. The oven and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of 1/2 psi (3.45 kPa).
2. The oven must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressure equal to or less than 1/2 psi (3.45 kPa).

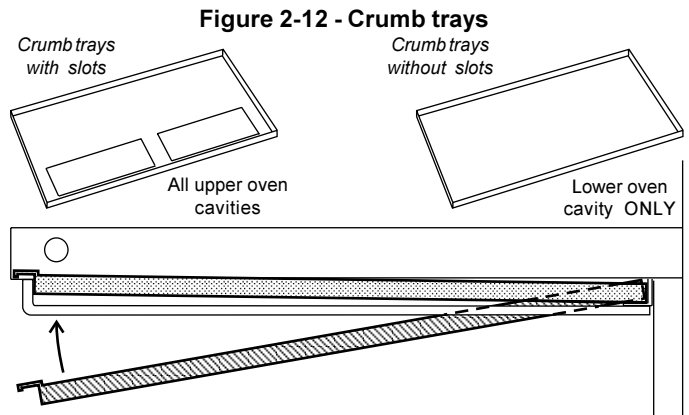
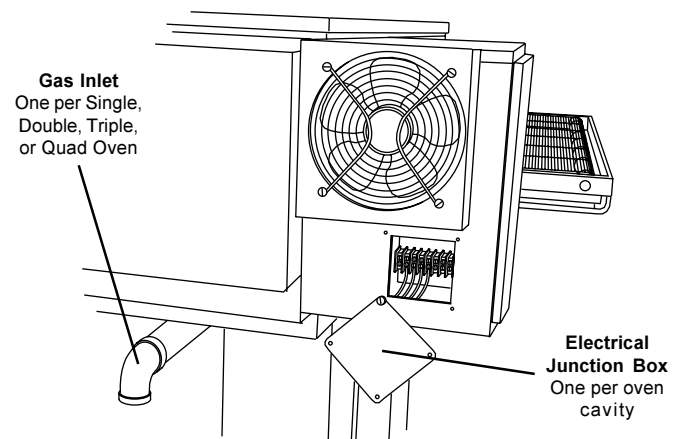


Figure 2-13 - Utility Connection Locations



All electric supply connections are made via the electrical junction box on the rear of the oven, shown in Figure 2-13. The power lines then connect to the oven circuits through safety switches located inside the machinery compartment and each blower motor compartment. These switches interrupt electric power to the oven when the Machinery Compartment Access Panel is opened, OR when either of the rear shrouds is removed.

Refer to the wiring diagram inside the machinery compartment of the oven to determine the correct connections for the electrical supply lines. Connect the supply as indicated on the wiring diagram. Be sure to connect the electrical supply ground wire to the oven ground screw located in the junction box on the rear of the oven.

3. If incoming pressure is over 14" W.C. (35mbar), a separate regulator **MUST** be installed in the line **BEFORE** the individual shutoff valve for the oven.

WARNING: To prevent damage to the control valve regulator during initial turn-on of gas, it is **very important** to open the 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.

SECTION 2 - INSTALLATION

A. Gas Utility Rough-In Recommendations

The following gas system specifications are **STRONGLY RECOMMENDED**. Deviating from these recommendations may affect the baking performance of the oven.

Gas Meter

- One or two oven cavities: 750 cfh meter
- Three or four oven cavities: 1200 cfh meter

Gas Line

- DEDICATED LINE from the gas meter to the oven
- 2-1/2" (63.5mm) pipe for natural gas
- 2" (50.8mm) pipe for propane
- Maximum length: 200' (61m). Each 90° elbow equals 7' (2.13m) of pipe.

B. Connection

Check the oven's gas supply requirements before making the gas utility connection. Gas supply requirements are listed on the oven's serial plate.

Check the serial plate to determine the type of gas (Propane or Natural) to be used with the oven.

Refer to the instructions in the gas hose package (included in the Installation Kit) before connecting the gas line. One gas line connection method is shown in Figure 2-14; however, compliance with the applicable standards and regulations is mandatory.

Inlet, regulated, and pilot gas pressure readings can be taken using a "U" tube manometer at the tap locations shown in Figure 2-15.

NOTE

In the USA, the installation must conform with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1.

In Canada, the installation must conform with local codes, or in the absence of local codes, with the Natural Gas Installation Code, CAN/CGA-B 149.1, or the Propane Installation Code, CAN/CGA-B 149.2, as applicable.

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

Certain safety code requirements exist for the installation of gas ovens; refer to the beginning of this Section for a list of the installation standards. In addition, because the oven is equipped with casters, the gas line connection shall be made with a connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69 (in U.S.A.), or, if applicable, Connectors for Movable Gas Appliances, CAN/CGA-6.16 (in Canada), as well as a quick-disconnect device that complies with the Standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41 (in U.S.A.), or, if applicable, Quick-Disconnect Devices for Use With Gas Fuel, CAN1-6.9 (in Canada).

C. Gas Conversion

Where permitted by local and national codes, it is possible to convert ovens from natural to propane gas, or from propane to natural gas. Use the appropriate Middleby Marshall Gas Conversion Kit for the specific oven model.

CAUTION *The terms of the oven's warranty require all start-ups, conversions and service work to be performed by a Middleby Marshall Authorized Service Agent.*

Figure 2-14 - Flexible Gas Hose Installation

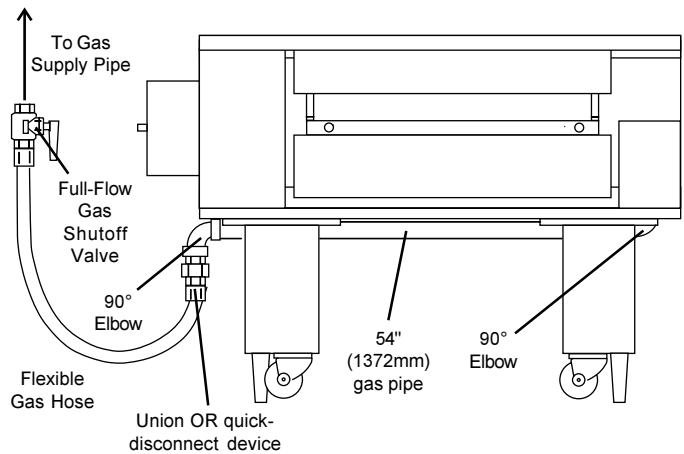
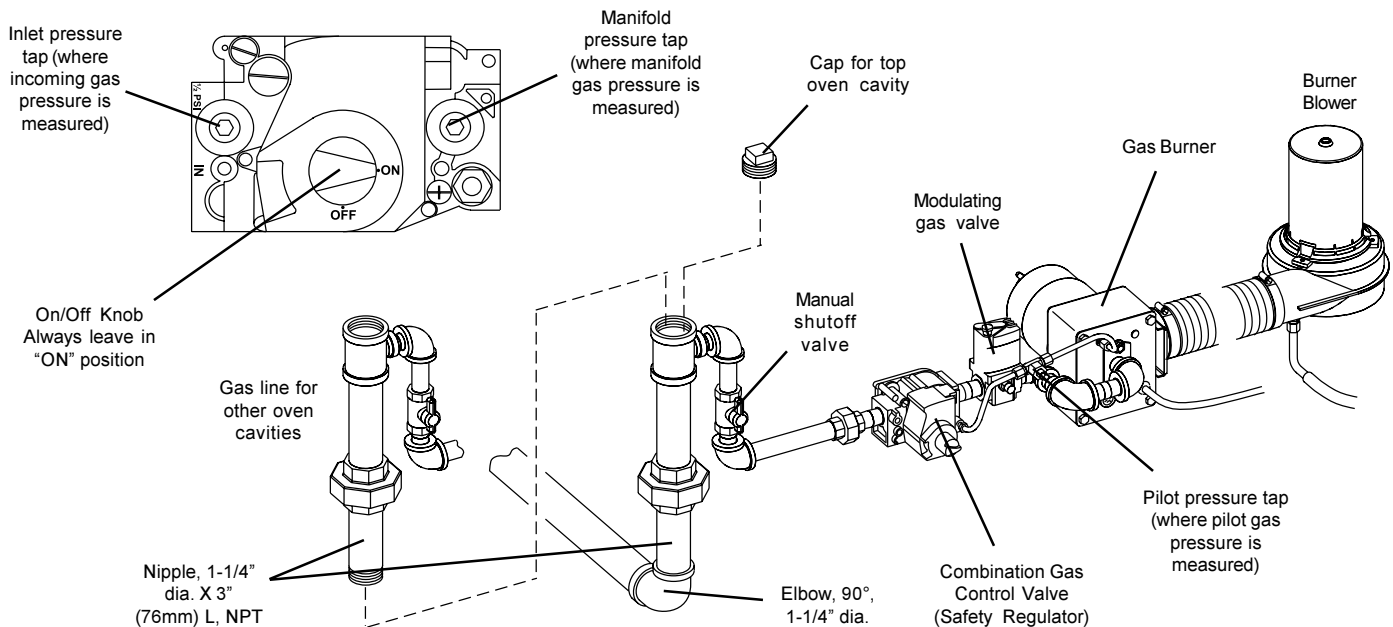


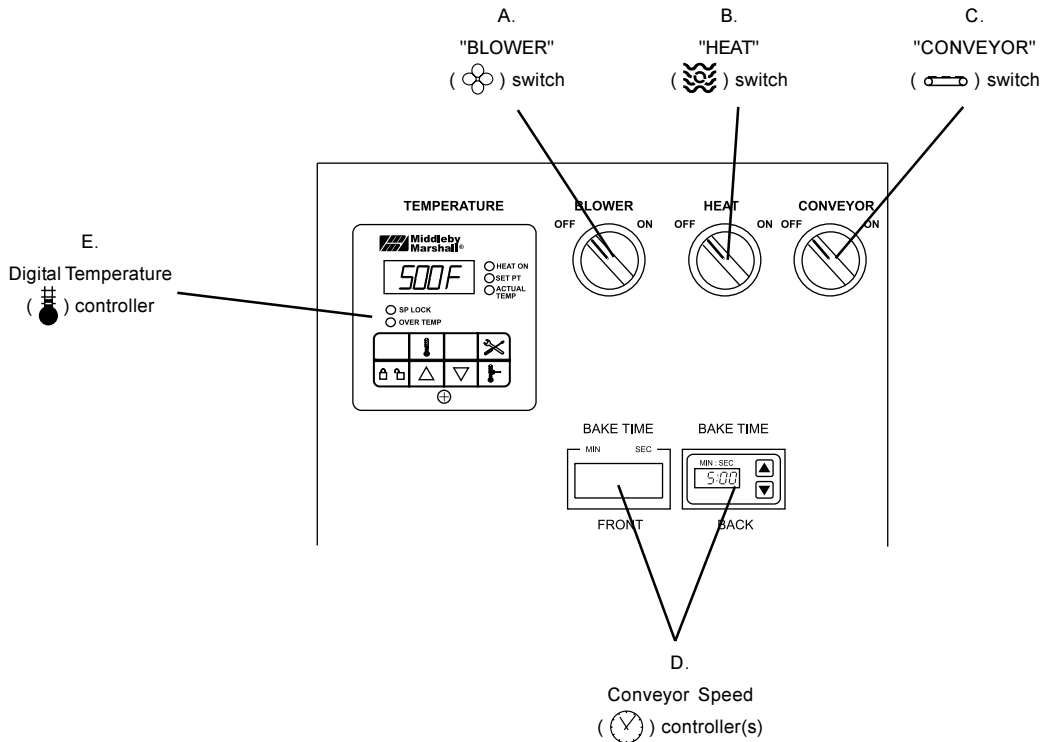
Figure 2-15 - Gas Burner and Piping Assembly








SECTION 3 - OPERATION

I. LOCATION AND DESCRIPTION OF CONTROLS

Fig. 3-1 - Control Panel



- A.  **"BLOWER" Switch:** Turns the blowers and cooling fans on and off. The HEAT Switch has no effect unless the BLOWER Switch is in the "ON" position.
- B.  **"HEAT" Switch:** Allows the gas burner (gas ovens) or heating elements (electric ovens) to light. Activation of the gas burner is determined by the settings on the Digital Temperature Controller.
- C.  **"CONVEYOR" Switch:** Turns the conveyor drive motor on and off.
- D.  **Conveyor Speed Controller:** Adjusts and displays the bake time. Single-belt ovens have one controller. Split belt ovens have one controller for each conveyor belt, labeled "FRONT" and "BACK."
- E.  **Digital Temperature Controller:** Continuously monitors the oven temperature. Settings on the Digital Temperature Controller control the activation of the gas burner.


NOT SHOWN:

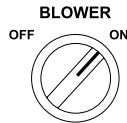
- F. **Machinery Compartment Access Panel Safety Switch:** Disconnects electrical power to the controls and the blowers when the machinery compartment access panel is opened. The panel should only be opened by authorized service personnel.


II. NORMAL OPERATION - STEP-BY-STEP

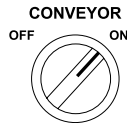
A. DAILY STARTUP PROCEDURE



1. Check that the circuit breaker/fused disconnect is in the on position. If the oven is equipped with a window, check that the window is closed.

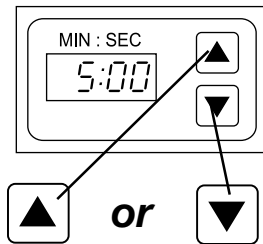
2. Turn the "BLOWER" (or ) switch to the "ON" (or "I") position.



3. Turn the "CONVEYOR" (or ) switch to the "ON" (or "I") position.

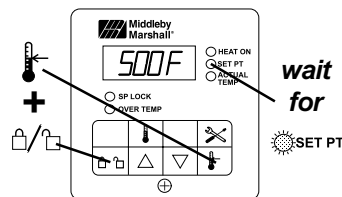


4. If necessary, adjust the conveyor speed setting by pressing the  or  pushbuttons on the conveyor speed controller to change the displayed bake time.

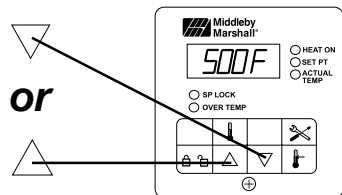



5. Adjust the temperature controller to a desired set temperature, if necessary.

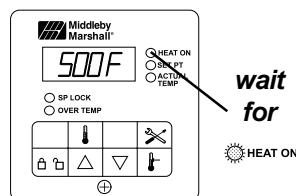
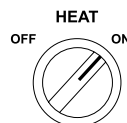
- Press the Set Point and Unlock keys at the same time. Wait for the "SET PT" light to turn on.




- Press the Up Arrow and Down Arrow Keys as necessary to adjust the set-point.

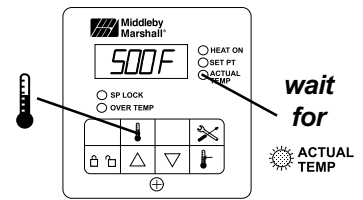


6. Turn the "HEAT" (or ) switch to the "ON" (or "I") position, and wait for the "HEAT ON" light to turn on.





7. Wait for the oven to heat to the setpoint temperature. Higher setpoint temperatures will require a longer wait. The oven can reach a temperature of 500°F (232°C) in approximately 5 minutes.

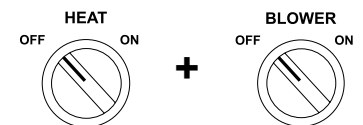
8. (Optional) Press the Temperature () key to show the Actual Temperature in the display, and wait for the "ACTUAL TEMP" light to turn on. This allows you to monitor the oven temperature as it rises to the setpoint.




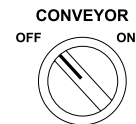
9. Allow the oven to preheat for 10 minutes after it has reached the set point temperature.

B. DAILY SHUTDOWN PROCEDURE

1. Turn the "HEAT" (or ) and "BLOWER" (or ) switches to the "OFF" (or "O") position. Note that the blowers will remain in operation until the oven has cooled to below 200°F (93°C).






2. Make certain that there are no products left on the conveyor inside the oven. Turn the "CONVEYOR" (or ) switch to the "OFF" (or "O") position.



3. If the oven is equipped with a window, open the window to allow the oven to cool faster.

4. After the oven has cooled and the blowers have turned off, switch the circuit breaker/fused disconnect to the off position.

IMPORTANT

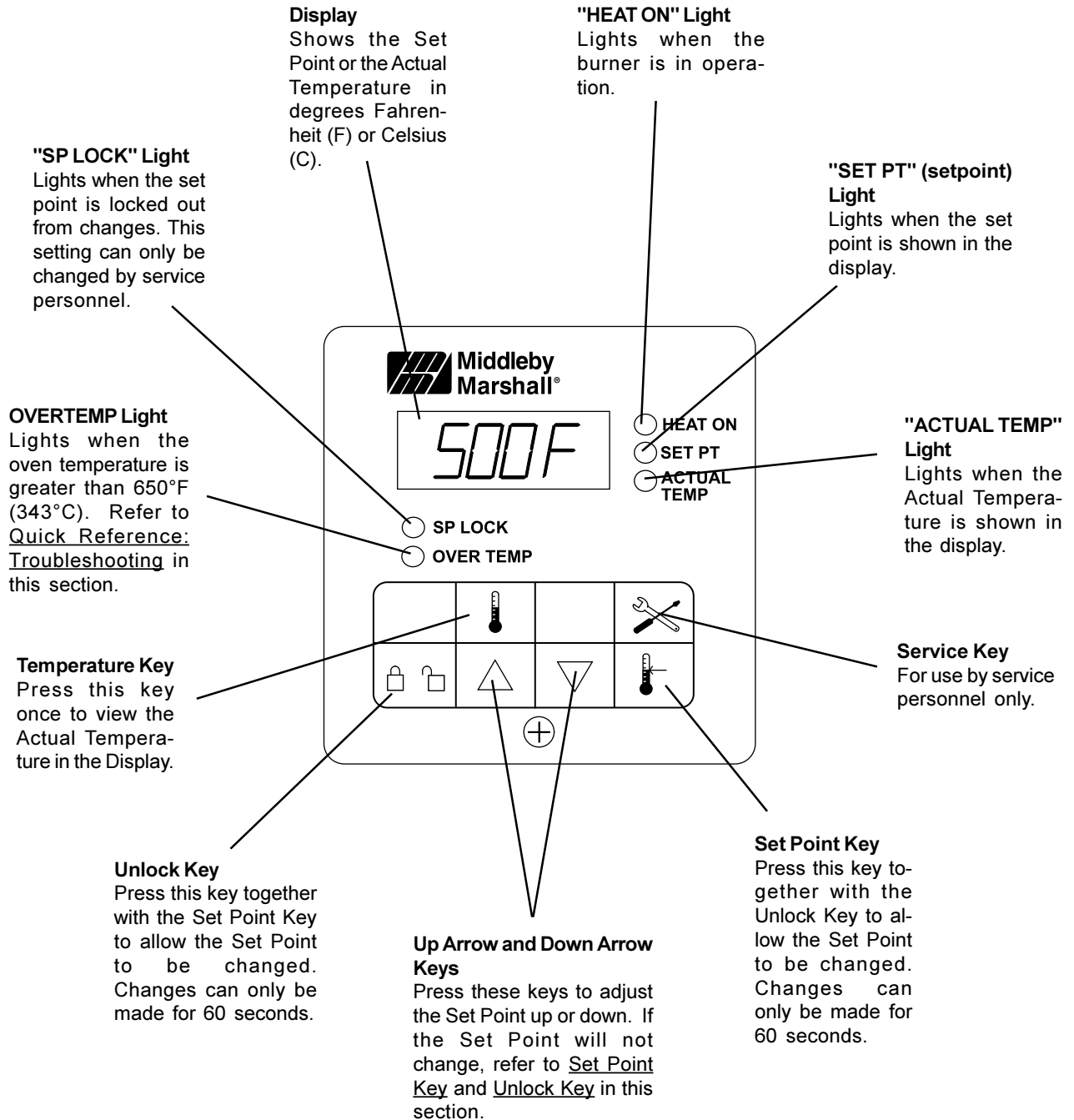
If the "HEAT ON" light will not illuminate, OR if the oven does not heat, the gas burner may not have lit. Turn the "HEAT" (), "BLOWER" (), and "CONVEYOR" () switches to the "OFF" ("O") position. Wait for AT LEAST FIVE MINUTES before restarting the oven. Then, repeat the Daily Startup procedure.

CAUTION
















In case of power failure, turn all switches to the "OFF" (or "O") position, open the oven window, and remove the product. After the power has been restored, perform the normal startup procedure.

The 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 a power failure.

III. QUICK REFERENCE: DIGITAL TEMPERATURE CONTROLLER



IV. QUICK REFERENCE: TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
 OVERTEMP <i>light is lit, food product is undercooked</i> <i>Oven will not turn on at all</i>	<p>The oven temperature exceeded 650°F (343°C), and the burner was automatically shut down.</p> <p>Electrical power may not be reaching the oven, or the controls may be set incorrectly.</p>	<ul style="list-style-type: none"> Follow the procedures under Daily Shutdown Procedures in this section to shut down the oven. Contact your Middleby Marshall Authorized Service Agent to determine and correct the cause of the condition to prevent damage to the oven. Check that the circuit breaker/fused disconnect is turned on. Check that the "BLOWER" (or ) Switch is in the "ON" (or "I") position. The burner cannot engage until the blowers are in operation.
<p><i>Oven shuts down shortly after it is turned on</i></p>	<p>The gas burner did not light within 90 seconds of turning the "HEAT" (or ) Switch to the "ON" (or "I") position. This automatically engages a safety lockout mode.</p>	<ul style="list-style-type: none"> Turn the "HEAT" (or ), "BLOWER" (or ), and "CONVEYOR" (or ) switches to the "OFF" (or "O") position. Wait for AT LEAST FIVE MINUTES before restarting the oven. Repeat the Daily Startup procedure.
 <p><i>appears in display, oven is not heating</i></p>	<p>The oven did not reach 200°F (93°C) within 15 minutes of startup, and the oven has stopped heating.</p>	<ul style="list-style-type: none"> Turn the "HEAT" (or ), "BLOWER" (or ), and "CONVEYOR" (or ) switches to the "OFF" (or "O") position. Wait for AT LEAST FIVE MINUTES before restarting the oven. Repeat the Daily Startup procedure.
<p><i>Oven will not heat</i></p>	<p>Controls may be set incorrectly.</p>	<ul style="list-style-type: none"> Check that the Set Point is correctly set. Check that both the "BLOWER" (or ) and "HEAT" (or ) Switches are in the "ON" (or "I") position. If the oven still will not heat, turn the "HEAT" (or ), "BLOWER" (or ), and "CONVEYOR" (or ) switches to the "OFF" (or "O") position. Wait for AT LEAST FIVE MINUTES before restarting the oven. Repeat the Daily Startup procedure. Check that the Set Point is above 200°F (93°C).
<p><i>Oven is operating, but little or no air is blowing from air fingers</i></p>	<p>Air fingers may have been reassembled incorrectly after cleaning.</p>	<ul style="list-style-type: none"> Turn the oven off, and allow it to cool. Disconnect electrical power to the oven. Refer to the Maintenance section of your Owner's Manual for instructions on reassembling the air fingers.
<p><i>Conveyor moves with a jerky motion, or will not move at all</i></p>	<p>Conveyor may be jammed on an object in the oven, or conveyor belt or drive chain tension may be incorrect.</p>	<ul style="list-style-type: none"> Turn the oven off, and allow it to cool. Disconnect electrical power to the oven. Check if the conveyor is blocked by an object inside the oven. Refer to the Maintenance section of your Owner's Manual for instructions on reassembling the air fingers.
<p><i>Food products are overcooked or undercooked.</i></p>	<p>Controls may be set incorrectly.</p>	<ul style="list-style-type: none"> Check that the set temperature and bake time settings are correct.

IF THESE STEPS FAIL TO RESOLVE THE PROBLEM, CONTACT YOUR LOCAL MIDDLEBY MARSHALL AUTHORIZED SERVICE AGENT. A SERVICE AGENCY DIRECTORY IS SUPPLIED WITH YOUR OVEN.

SECTION 4 - MAINTENANCE

WARNING

Before ANY cleaning or servicing of the oven, perform the following procedure:

1. Switch off the oven and allow it to cool. Do NOT service the oven while it is warm.
2. Turn off the electric supply circuit breaker(s) and disconnect the electric supply to the oven.
3. If it is necessary to move the oven for cleaning or servicing, disconnect the gas supply connection before moving the oven.

When all cleaning and servicing is complete:

1. If the oven was moved for servicing, return the oven to its original location. Adjust the legs so that they are seated properly on the floor. For quad ovens, lock the two front casters.
2. Reconnect the gas supply.
3. Reconnect the electrical supply.
4. Turn on the full-flow gas safety valve. Test the gas line connections for leaks using approved leak test substances or thick soap suds.
5. Turn on the electric supply circuit breaker(s).
6. Perform the normal startup procedure.

WARNING

Possibility of injury from moving parts and electrical shock exists in this oven. Switch off and lockout/tagout the electric supply BEFORE beginning to disassemble, clean, or service any oven. Never disassemble or clean an oven with the BLOWER switch or any other circuit of the oven switched on.

CAUTION

NEVER use a water hose or pressurized steam-cleaning equipment when cleaning this oven. DO NOT use excessive amounts of water, to avoid saturating the oven insulation. DO NOT use a caustic oven cleaner, which can damage the aluminized bake chamber surfaces.

NOTE

ANY replacement parts that require access to the interior of the oven may ONLY be replaced by a Middleby Marshall Authorized Service Agent. It is also strongly recommended that the 3-Month Maintenance and 6-Month Maintenance procedures in this section be performed ONLY by a Middleby Marshall Authorized Service Agent.

I. MAINTENANCE - DAILY

- A. Check that the oven is cool and the power is disconnected, as described in the warning at the beginning of this Section.
- B. Clean the outside of the oven with a soft cloth and mild detergent.
- C. Clean the front cooling fans, as follows:
 - Snap off the protective grille, and wipe it clean with a cloth. See Figure 3-1.
 - Remove the foam filter and inspect it. If it is dusty, shake it briskly. If dirt or grease is present on the filter, wash it in warm, soapy water. Rinse the filter, squeeze it to remove as much of the water as possible, and then set it aside to dry thoroughly before reinstallation.
 - Once the filter is dry, reinstall the filter and grille.
- D. Clean ALL of the cooling fan grills and vent openings with a stiff nylon brush.
- E. Check that ALL cooling fans are operating properly.

CAUTION

If a cooling fan is not operating correctly, it must be replaced IMMEDIATELY. Operating the oven without adequate cooling can damage the oven's internal components.

- F. Clean the conveyor belts with a stiff nylon brush. This is more easily accomplished by allowing the conveyor to run while you stand at the exit end of the conveyor. Then, brush the crumbs off the conveyor as it moves.
- G. Remove and clean the crumb trays. Be sure to replace the trays in the same positions from which they were removed, because they are NOT identical. Refer to Figure 3-2.
- H. Clean the window in place.

Figure 4-1 - Front Cooling Fans

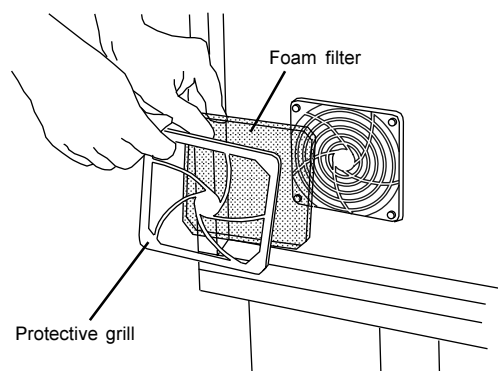
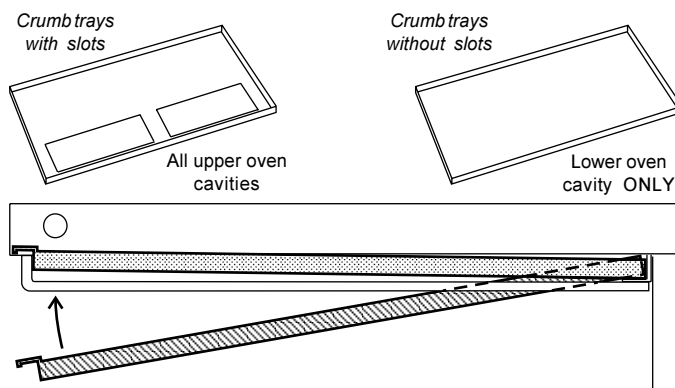


Figure 4-2 - Crumb trays



II. MAINTENANCE - MONTHLY

- A. Check that the oven is cool and the power is disconnected, as described in the warning at the beginning of this Section.
- B. Remove the crumb trays and drive motor shroud from the oven.
- C. Lift the drive end of the conveyor slightly, and push it forward into the oven. This removes the tension from the drive chain. Then, remove the drive chain from the conveyor sprocket.

NOTE

Split belt conveyors can only be removed from the end of the oven with the drive motor.

Single-belt conveyor assemblies may be removed from either end of the oven. If it is to be removed from the end of the oven without the drive motor, the drive sprocket assembly must be removed.

To remove the drive sprocket (if necessary), loosen the set screw on the conveyor collar as shown in Figure 4-3. Then, pull the sprocket assembly straight out.

- D. Slide the conveyor out of the oven, folding it as it is removed. See Figure 4-4.
- E. Remove the end plugs from the oven.
- F. Slide the air fingers and blank plates out of the oven, as shown in Figure 4-5. AS EACH FINGER OR PLATE IS REMOVED, WRITE A "LOCATION CODE" ON IT WITH A MARKER to make sure that it can be reinstalled correctly.

Example of markings:

(Top Row)	T1	T2	T3	T4	T5	T6
(Bottom Row)	B1	B2	B3	B4	B5	B6

- G. Disassemble the air fingers as shown in Figure 4-5. AS EACH FINGER IS DISASSEMBLED, WRITE THE "LOCATION CODE" FOR THE FINGER ON ALL THREE OF ITS PIECES. This will help you in correctly reassembling the air fingers.

CAUTION

Incorrect reassembly of the air fingers will change the baking properties of the oven.

- H. Clean the air finger components and the interior of the baking chamber using a vacuum cleaner and a damp cloth. Refer to the boxed warnings at the beginning of this Section for cleaning precautions.
- I. Reassemble the air fingers. Then, replace them in the oven, using the "location code" as a guide.
- J. Replace the end plugs on the oven.
- K. Reassemble the conveyor into the oven. If the drive sprocket was removed when installing the conveyor, replace it at this time.
- L. Reattach the drive chain.
- M. Check the tension of the conveyor belt as shown in Figure 4-6. The belt should lift between 3-4" (75-100mm). DO NOT OVERTIGHTEN THE CONVEYOR BELT. If necessary, the belt tension can be adjusted by turning the conveyor adjustment screws, located at the idler (right) end of the conveyor.
- N. Replace the crumb trays and drive motor shroud.

Figure 4-3 - Removing the Conveyor Drive Sprocket

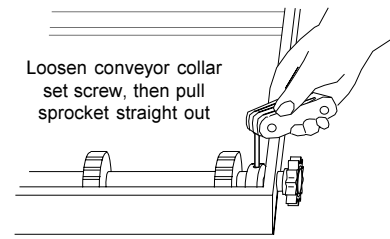


Figure 4-4 - Removing the Conveyor

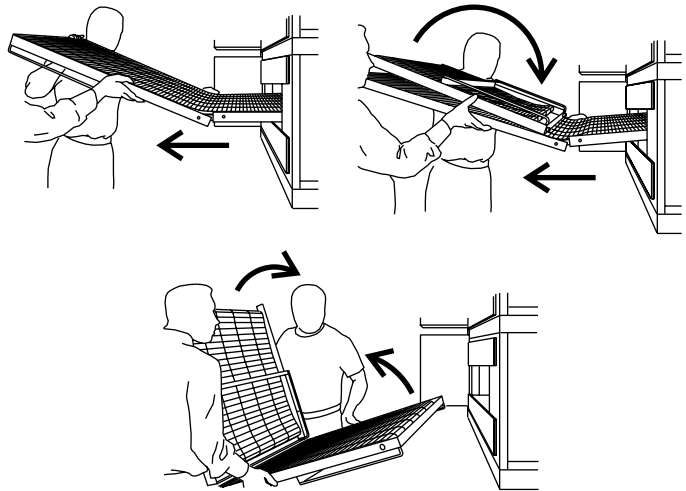


Figure 4-5 - Removing Air Fingers and Plates

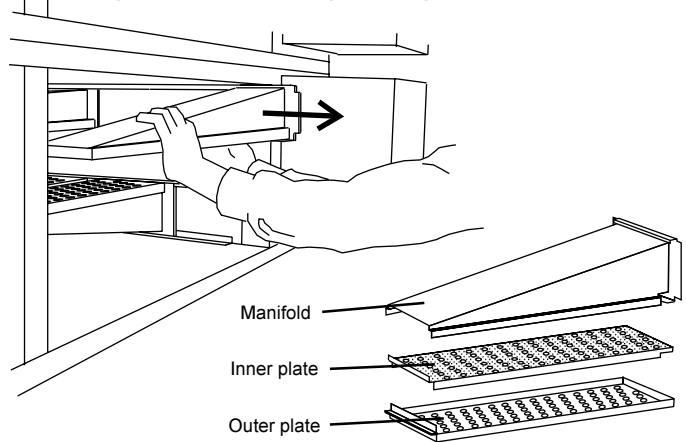
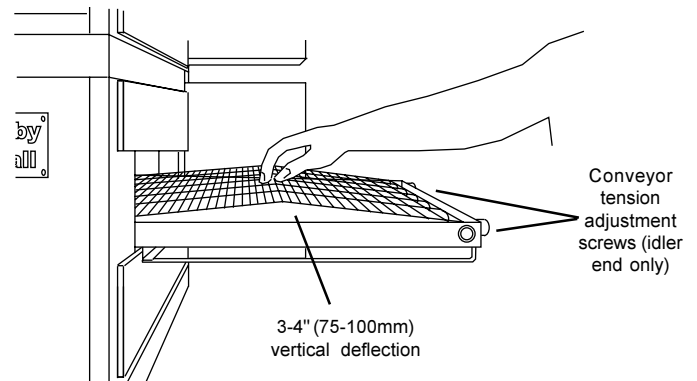


Figure 4-6 - Checking the conveyor tension



III. MAINTENANCE - EVERY 3 MONTHS

- A. Check that the oven is cool and the power is disconnected, as described in the warning at the beginning of this Section.
- B. Vacuum both of the blower motors, and their surrounding compartments, using a shop vacuum.
- C. Tighten all electrical control terminal screws.
- D. **Split Belt Disassembly and Cleaning**

For split belt ovens ONLY, disassemble, clean and lubricate the conveyor shaft components as described below.

1. Remove the motor shroud, conveyor extensions, and conveyor as described in Part II, Monthly Maintenance.
2. Remove the master links from each conveyor belt. Then, roll the belts up along the length of the conveyor to remove them from the frame.
3. Remove the two conveyor adjustment screws from the idler end of the conveyor frame, as shown in Figure 4-7.
4. Remove the idler shaft assembly from the conveyor.
5. Pull apart the two sections of the idler shaft. Clean the shafts thoroughly using a rag. Then, lubricate both the extended shaft and the interior of the hollow shaft using an FDA-approved light food-grade lubricant.

CAUTION

DO NOT lubricate the shafts using WD40 or a similar product. This can cause the shafts to wear rapidly.

6. Before reassembling the shafts into the conveyor frame, check that they are oriented properly. Remember that unequal-width split belt ovens should ALWAYS have the narrower belt at the front of the oven.
7. Reassemble the idler shaft into the conveyor. Make sure that the bronze washer is in place between the two sections of the shaft. See Figure 4-9.
8. Replace the conveyor adjustment screws as shown in Figure 4-7. To allow the conveyor belt to be reinstalled later, do not tighten the screws at this time.
9. Loosen the set screw on both of the conveyor drive sprockets. Then, remove the sprockets from the shaft.
10. Loosen the locking collar set screw. See Figure 4-8.
11. Push the drive shaft to the left, then lift it free of the conveyor frame. Then, disassemble and lubricate the two sections of the drive shaft as described in Step 5.
12. Before reassembling the shafts into the conveyor frame, check that they are oriented properly. Remember that unequal-width split belt ovens should ALWAYS have the narrower belt at the front of the oven.
13. Reassemble the drive shaft into the conveyor. Check that the nylon spacer is in place, as shown in Figure 4-9. Also, check that the bronze washer is in place between the two sections of the shaft.
14. Replace the drive sprockets. Reassemble the belts and master links onto the conveyor. Check that the smooth side of the conveyor belt faces UP, and that the belt and master links are oriented as shown in Figure 4-10.
15. Reassemble the conveyor, motor shroud and conveyor extensions onto the oven.
16. Check the tension of the conveyor belt as shown in Figure 4-6. The belt should lift between 3-4" (75-100mm). If necessary, adjust the belt tension by turning the conveyor adjustment screws.

Figure 4-7 - Split Belt Idler Shaft

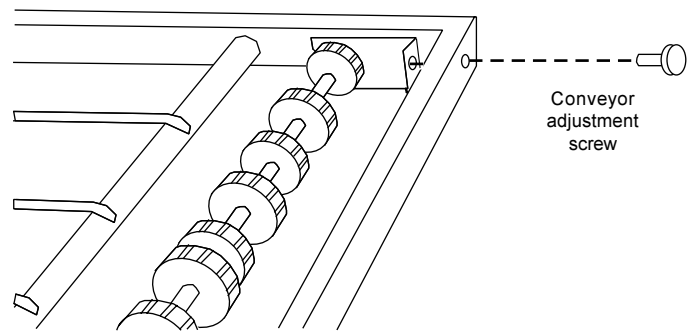


Figure 4-8 - Split Belt Drive Shaft

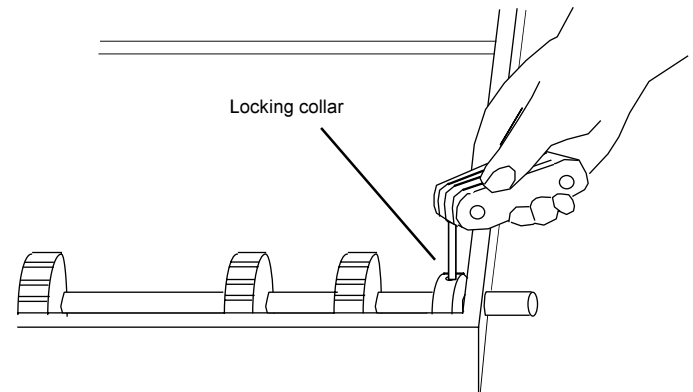


Figure 4-9 - Washer and Spacer

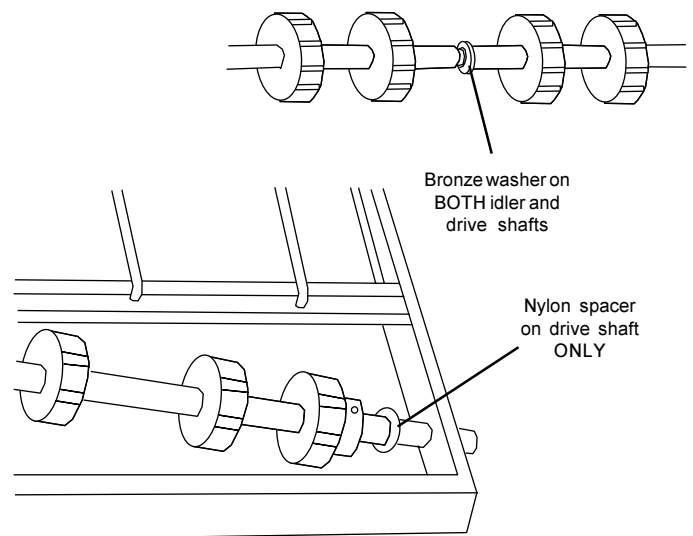
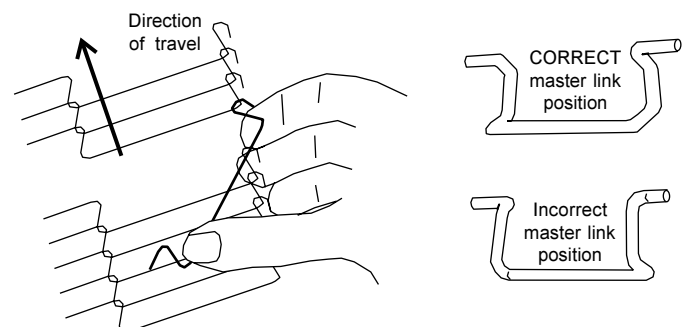


Figure 4-10 - Conveyor and Master Link Orientation



E Blower Belts

1. To gain access to each blower belt compartment, remove the four screws shown in Figure 4-11. Then, lift the rear shroud off its hangers.
2. Check each blower belt for at least 1" (25mm) deflection at the center, and for cracking or excessive wear. See Figure 4-12. Overtightening the belt will cause premature bearing failure and possible vibrations.
3. If necessary, adjust the tension of the belt by loosening the four motor mounting bolts. Reposition the motor as necessary until the correct deflection is reached, then tighten the motor mounting bolts.

F. Lubricating the Blower Fan Bearings

1. Use a grease gun to lubricate the main blower fan shaft bearings, as shown in Figure 4-13.

When lubricating the bearings:

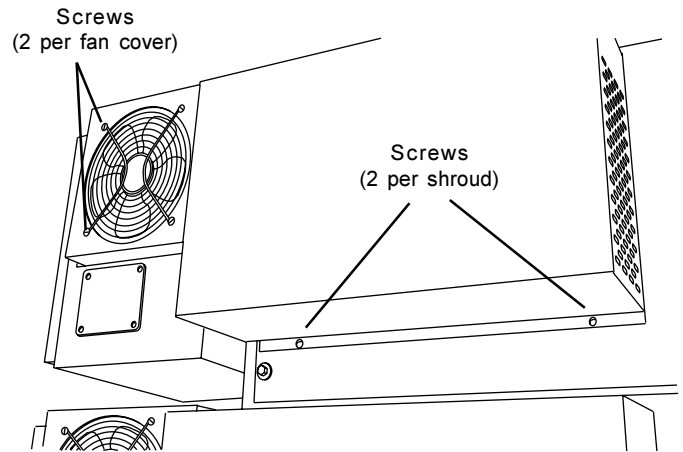
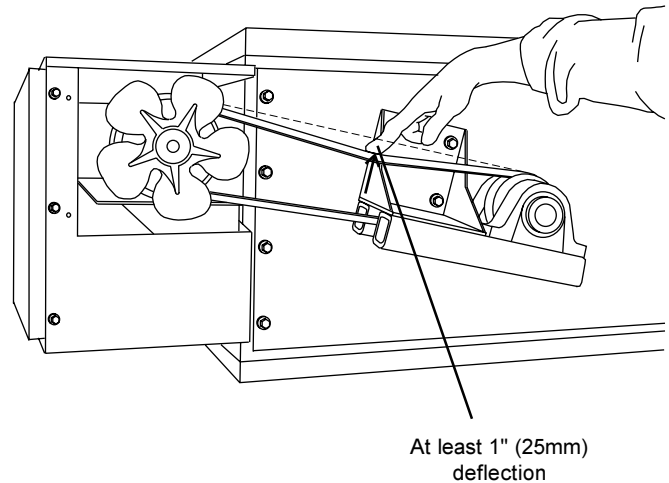
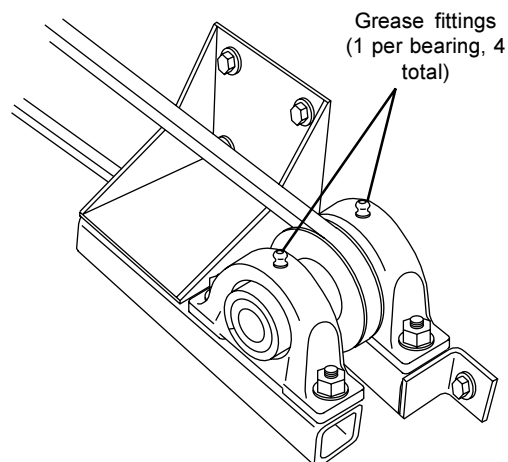
- Use a high-quality NLGI #2, lithium soap grease with petroleum oil, such as Middleby P/N 17110-0015.
 - Add the grease slowly until a small bead of grease is present at the seals. **AVOID OVERGREASING.** Excessive greasing may harm the bearing.
2. Manually turn the blower shaft by pulling on the belt to purge the grease.
 3. Wipe off any excess grease on the bearings. Then, replace the shrouds onto the oven.

NOTE

The oven will not operate unless both of the rear shrouds are in place.

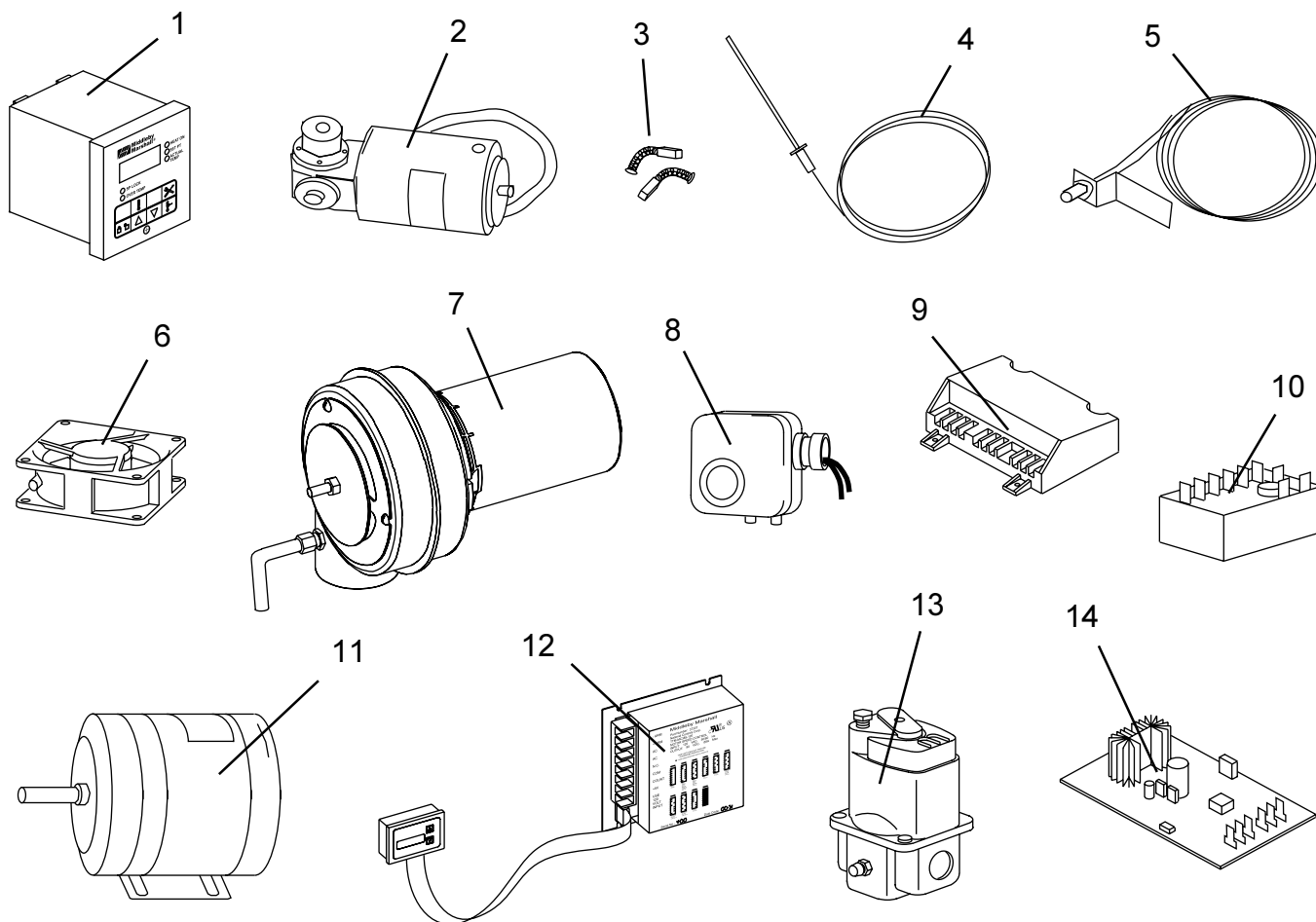
IV. MAINTENANCE - EVERY 6 MONTHS

- A. Check that the oven is cool and the power is disconnected, as described in the warning at the beginning of this Section.
- B. Check for excessive wear on the conveyor drive motor brushes. The brushes should be replaced if they have worn to less than 1/4" (6.4mm) in length. Be sure to replace the brushes in exactly the same position.
- C. Clean and inspect the burner nozzle and electrode assembly.
- D. Check (and clean, if necessary) the oven venting system.
- E. Check the conveyor drive shaft bushings and spacers. Replace the components if they are worn.

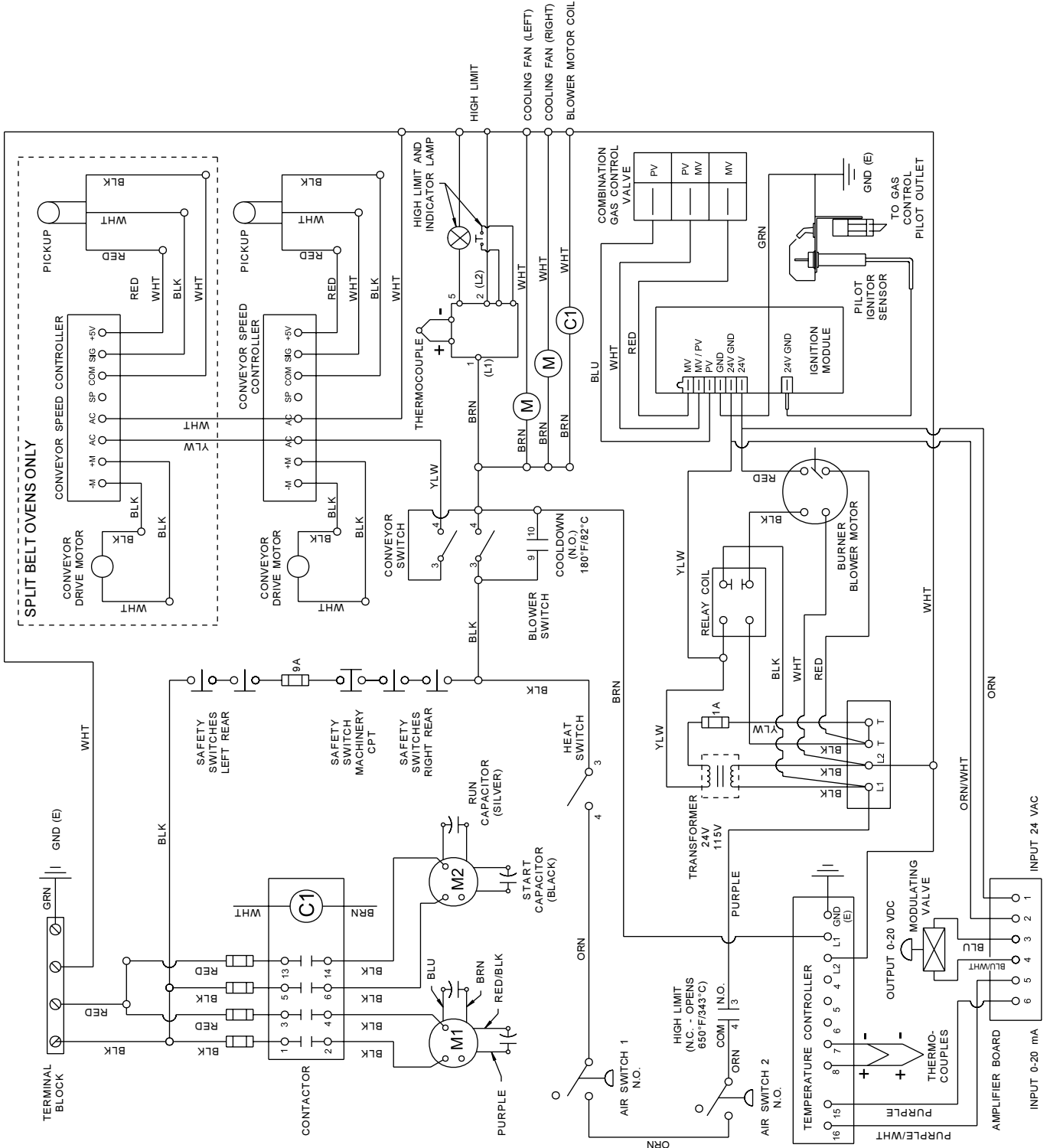
Figure 4-11 - Rear Shrouds**Figure 4-12 - Fan Belt Tension****Figure 4-13 - Lubricating the Bearings**

V. KEY SPARE PARTS KIT

<i>Item</i>	<i>Part No.</i>	<i>Description</i>
1	36939	Kit, Digital Temperature Controller
2a	27384-0008	Motor, Conveyor Drive (for single-conveyor belt ovens)
2b	27384-0014	Motor, Conveyor Drive (for standard split-belt ovens)
2c	27384-0011	Motor, Conveyor Drive (for extended-bake split-belt ovens)
3a	22450-0052	Brushes, Drive Motor (for all single-belt ovens)
3b	22450-0230	Brushes, Drive Motor (for all split-belt ovens)
4	33984	Kit, Thermocouple
5	27170-0263	Assembly, Pickup, Conveyor Drive
6	27392-0002	Fan, Cooling
7	27170-0011	Assembly, Burner Blower and Motor
8	35624	Kit, Air Switch
9	42810-0114	Kit, Ignition Module
10	34982	Module, High Limit Control, 115V
11	27381-0069	Motor, Blower, 1 HP
12	42810-0133	Kit, Conveyor Speed Controller
13	41647	Valve, Modulating Gas, 1/2"
14	31651	Amplifier, Modulating Valve



SECTION 5 - ELECTRICAL WIRING DIAGRAM



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