# southbend

*A MIDDLEBY COMPANY*

# OWNER'S MANUAL

## INSTALLATION

## USER'S GUIDE

DIRECT STEAM POWER TILTING OR STATIONARY KETTLE

MODELS: DMT-30, DMT-40, DMT-60

These instructions should be read thoroughly before attempting installation. Set up, installation and Performance Check should be performed by a qualified service technician. The Manufacturer. Southbend (1100 Old Honeycutt Rd.. Fuquay-Varina, North Carolina 27526), informs you that unless the installation instructions for the above described Southbend product are followed and performed by a qualified service technician, (a person experienced in and knowledgeable concerning the installation of commercial gas and/or electrical cooking equipment) then the terms and conditions of the Manufacturer's Limited Warranty will be rendered void and no warranty of any kind shall apply.

If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the 12-month limited warranty period, then the manufacturer shall not be liable for any incidental or consequential damages to any person or to any property which may result from the use of the equipment thereafter. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion thereto may not apply to you.

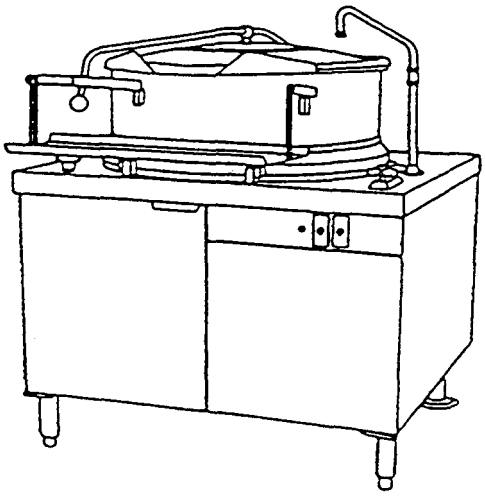
In the event you have any question concerning the installation, use, care. or service of the product, write Customer Service Department. Southbend Corporation. 1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526.

# INSTALLATION AND OPERATION

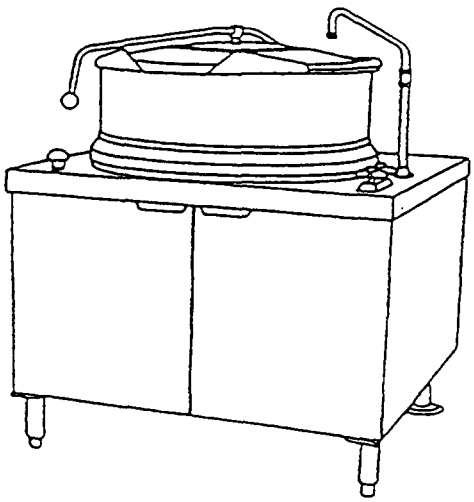
# MANUAL

DIRECT STEAM POWER TILTING OR STATIONARY

20, 30, 40, 60 GALLON



DMT



DMS

southbend

*A MIDDLEBY COMPANY*

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## INSTALLATION AND OPERATION

It is recommended that this manual be read thoroughly and that all instructions be followed carefully. This manual should be retained for future reference.

ADEQUATE CLEARANCES MUST BE MAINTAINED FOR SAFE AND PROPER OPERATION

I N D E X

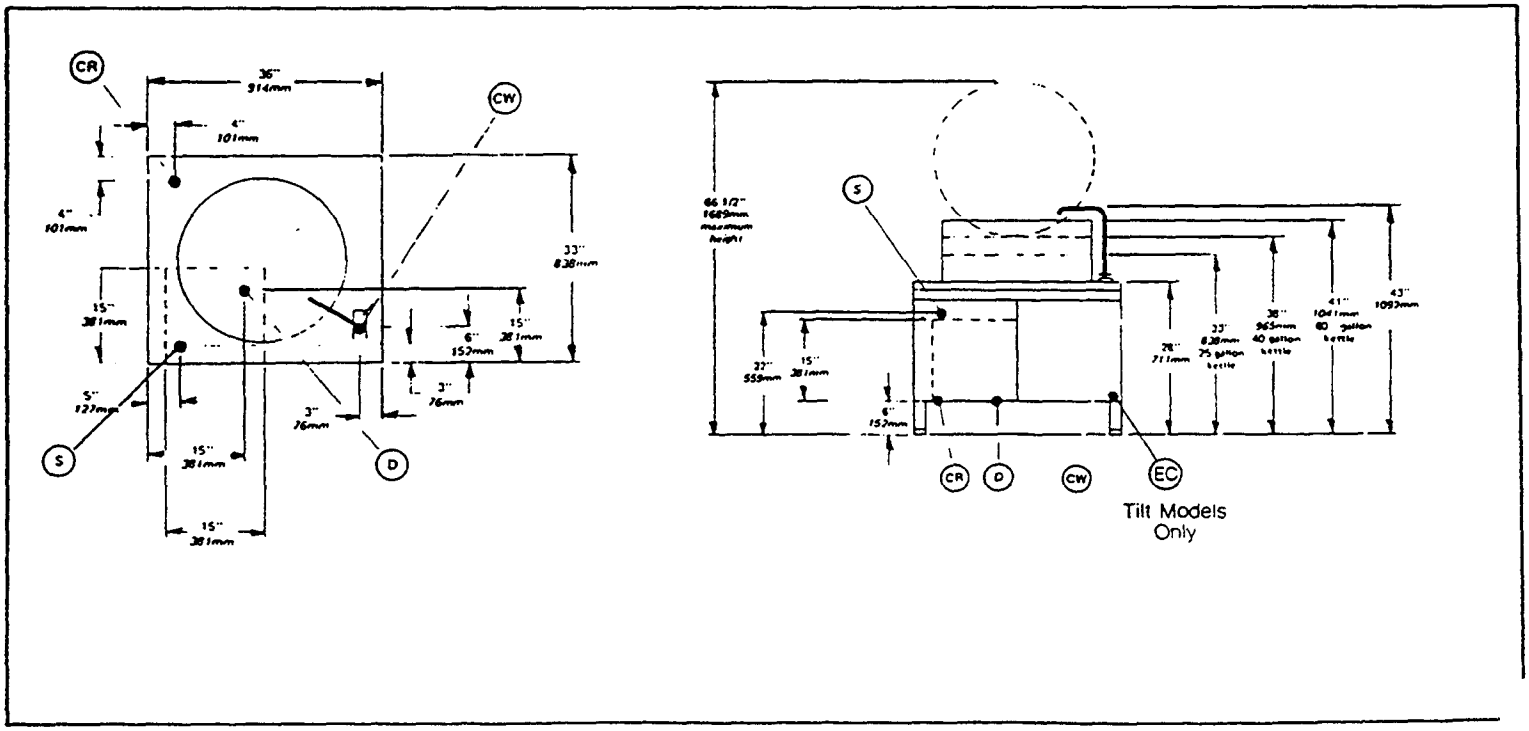

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**INSTALLATION & SERVICE CONNECTIONS**

| DIRECT CONNECTED | |
|---|---|
| S* | Steam supply - *3/4"(19mm)* I.P.S. 5-35 PSI *(.04-240 kg/cm$^2$).* |
| CW | Cold Water - *3/8"(10mm)* nominal tubing to kettle fill faucet. |
| D | Drain - Pipe full 2" I.P.S. *(50mm)* to flush drain. DO NOT MAKE SOLID CONNECTIONS TO DRAIN. |
| CR | Condensate Return - 1/2" I.P.S. *(13mm)* connection for condensate return from kettle when specified. |
| EC | 120V 60 Hz 1 PH. Tilt models only. |

**NOTES:**

* Pressure reducing valve is required if incoming pressure exceeds 35 psi.
* Recess area for kettle draw off (dotted line) must be kept free of all piping and connections.
* Tilting kettles shall be equipped with 6" *(152mm)* adjustable hold-down feet in the rear.



# INSTALLATION INSTRUCTION

**WARNING:** ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODES.

**WARNING:** PLUMBING CONNECTIONS MUST COMPLY WITH APPLICABLE HEALTH, SAFETY AND PLUMBING CODES.

1. Select a location to provide drainage directly below the draw off valve. Allow sufficient rear clearance from the wall for the kettle cover to lift upright freely without obstructions. Allow for clearance to side service panels.

2. Level the unit. Then mark anchoring hole locations through flanged adjustable feet.

3. With hole locations marked, drill holes and insert expansion plugs to accommodate 5/16" size lag bolts.

4. Reposition the kettle. Check the level again.

5. Bolt the kettle down and seal with a high grade sealing compound. Sealant must be applied not only to bolt heads but around the flanges and must be making contact with floor surface to meet N.S.F. requirements. Wipe off excess sealant immediately.

6. Connect the steam line to the kettle, (3/4" i.p.s., 5-35 p.s.i. pressure).

7. Connect hot and cold water supply to the faucet.

8. Connect the kettle condensate return line to a 2" open air gap drain or to a boiler return line. Each kettle return line must have a suitable steam trap (supplied by others). Boiler return lines must have a check valve (supplied by others).

9. A control box with power supply equivalent to electrical rating of the unit should be located nearby. A waterproof electrical connection for the power supply to the unit must be provided (for Power tilting models only).

10. The relief valve on the kettle must not be adjusted or closed off as it is set to relieve excess pressure in the kettle.

11. If the incoming steam pressure is greater than kettle maximum operating pressure, than a pressure reducing valve (supplied by others) must be installed in the line.

12. If large amounts of water accumulate in the steam line, it will be necessary to install one or more ball float traps (supplied by others) in the line to eliminate the water.

13. A steam line pressure gauge (supplied by others) is also recommended to determine the actual amount of steam coming to the kettle.

14. Turn unit on when electrically connected, then check for proper operation.

# INTRODUCTION

The CROWN DMS and DMT kettles are direct steam models mounted in a modular cabinet base. The DMS is a modular stationary model supplied with a tangent draw off valve for food product removal.

The DMT is a direct steam modular titling model. It has a hydraulic pump and piston to tilt the kettle to any angle between zero and ninety degrees for complete emptying of food products. Tilting models include a pan carrier that holds a 12" x 20" pant (Pan not supplied).

Both of these units employ kettles which are direct steam, operated pressure vessels with a double wall stainless steel construction forming a steam chamber (jacket) around the lower two thirds of the kettle. These kettles are furnished with a steam control valve and a hot and cold water fill faucet mounted on the stainless steel counter top. Every kettle has a pressure relief valve. Access to the inner cabinet area for installation or service is through the removable side panels or the doors on the front of the unit.

The kettle bowl is the container for the food product which ideally should be a liquid or semi-liquid for complete contact with the bowl surface to fully absorb the heat transmitted through the surface from the steam in the kettle jacket.

These kettles are intended to be permanently floor mounted with adjustable flanged feet.

## CAPACITIES

Ail models end with 20, 30, 40 and 60 to indicate the capacity of that kettle in gallons. For example, model DMT 40 indicates a tilting two thirds jacketed steam, kettle mounted in a cabinet base, with a capacity of 40 gallons. A DMS 40 is stationary.

## CONTROLS

The electrical controls are in the upper right area of the kettle front. One control is an "ON-OFF" switch for the tilting mechanism. The second control, in the up position tilts the kettle forward to full tilt. In the down position the kettle is lowered to full down. Stopping the up or down control will hold the kettle at any position the kettle is stopped.

## PAN CARRIER (DMT Model Only)

The DMT (tilting) model is equipped with a pan carrier. This pan support is made of stainless steel and is removable, without tools, for cleaning. It holds one 12" x 20" pan and will lock the pan in a horizontal position not more than 2" from the kettle lip throughout the tilting operation.

## SWING DRAIN

Each kettle has a swing drain to use with the draw off valve. It is removable, without tools, and has a removable strainer.

## HYDRAOLIC SYSTEM (DMT Model Only)

The hydraulic system in every DMT kettle has been adjusted and tested at. the factory and no further adjustment should be needed. If the unit fails to operate properly, all service work roust be performed by a qualified service agent.

## OPERATING PROCEDURES

**WARNING:** THE KETTLE IS HOT. USE CARE WHEN OPERATING AND SERVICING THE KETTLE.

1 . With tilting units turn the power switch on.

2. Push the rocker switch to the raise or up position. Check that the kettle begins to rise. Allow the kettle to travel to its full up position then push the rocker switch to the down position and the kettle will return to the original position. The kettle will stop and hold its position at any point along the travel path if the rocker switch is released.

3. Check that the draw off valve is closed.

4. Fill the kettle with product to the desired level.

**NOTE:** Food products with milk or egg base should be placed into a cold kettle and then the cooking operation begun. Avoid sudden contact of these food products with a hot kettle surface because the food will stick to the surface.

5. Slowly turn the steam control valve ON to the full open position (counter-clockwise). The kettle will begin to heat. It is important that the condensate return valve located on the bottom of the kettle be opened daily before starting the unit up, to allow any accumulation of water to be emptied. Not doing this reduces the efficiency of the kettle.

6. Slowly open the relief valve to allow all air to escape. Stay clear of the valve outlet during this operation to avoid very hot steam.

7. The water or food should boil in 3 to 4 minutes per gallon. If it does not, then incoming pressure should be checked to determine that it is adequate to operate the kettle efficiently.

8. Regulate the steam control valve depending on the type of food being prepared.

9. When the food is cooked, turn off the steam, remove the food through the draw off valve or by tilting. Clean the kettle immediately to prevent residue from drying on the kettle bowl .

# OPERATION OF HYDRAULIC POWER UNIT

## START UP:

a) Turn on power switch. Amber pilot light will come on. System is now ready for operation.

b) By moving the tilt switch "UP or "DOWN" the kettle will travel in the direction desired. The kettle can be stopped in any position.

c) Speed of lift and retraction of tilt mechanism is factory set.

c) Warning: DO NOT TRY TO TILT KETTLE WITH LID DOWN.

## MAINTENANCE:

a) Hot oil in the Hydraulic System is one of the primary causes of poor operation. When the tilt system is not in use turn power switch off.

b) Inspect hydraulic hoses for wear and aging.

c) Use proper oil as specified by factory. Type: AWH 32 or equivalent.

d) Check that fluid level are kept full.

e) To replace oil, fill through filler breather.

## ADJUST SPEED OF KETTLE

Although the speed of the kettle tilt operation is factory set, it may become necessary to make adjustments. The following directions should be followed:

a) Screw at the base of the flow control module at front adjusts the speed for the "Upward" stroke counter clockwise increases the speed. The travel speed should be set at minimum 20 seconds.

b) Screw at base of flow control module at rear adjusts the speed for the downward stoke. Clockwise decreases the speed and counter clockwise increases the speed. The trace speed should be set at minimum 10 seconds. (Adjustments are when you face the unit).

## CLEANING PROCEDURES

Your kettle should be cleaned immediately after each use when cooking a different prooduct or when cooking is completed. Before cleaning, check that the kettle has cooled enough to touch it.

1. Check that the steam supply and power supply is OFF.

2. Rinse the inside of the kettle thoroughly and drain to remove any food particles.

3. Using a nylon brush, clean the kettle with a mild detergent and water. Never use steel wool or scouring powder as it will scratch stainless steel. Plain steel wool can leave small pieces of steel wool which can rust.

*4.* Tilt the kettle to its highest position or open the tangent draw off valve to allow the detergent and water solution to drain. Rinse thoroughly with clean water.

5. By hand, turn the large hex nut on the draw off valve counter clockwise until it is completely disengaged from the threads. Grasp the valve knob and slowly pull out the valve steam and disk. Do not allow the disk to come in contact with hard surfaces as it can be damaged and cause valve leakage. Wash the valve stem, disk and handle. Insert a nylon brush wet with detergent and water into the valve body and tangent draw off tube. Brush vigorously.

6. Replace the valve stem assembly and turn the hex nut until snug. Rinse the kettle with clean warm water.

7. Leave the draw off valve open when the kettle is not in use.

8. Wipe the exterior of the kettle with a clean, damp cloth.

9. Never spray water into the electrical controls.

**WARNING**

It is NOT RECOMMENDED to use cleaning agents that are corrosive.

Use of cleaning agents that contain chloride, acids or salts are corrosive and may cause pitting and corrosion when used over a period of time; this will reduce the life of the appliance.

Should pitting or corrosion occur this is not covered by warranty.

Follow the recommended cleaning instructions. Use a mild detergent, warm water and rinse thoroughly.

## PREVENTIVE MAINTENANCE

No preventive maintenance is required other than adhering to the Cleaning Procedure instructions.

## DRAW-OFF VALVE LEAKS

If leak occurs through the valve steam, replace the "0" ring. If the leak can be attributed to faulty sealing occurring between the stem disc and valve seat, then quite often this problem can be corrected by cleaning off the dried on food residue with an extremely fine emery cloth or rubber vulcanized stem piece has been damaged and must be replaced.

**NOTICE**

DRAW OFF VALVE HAS A VUCANIZED RUBBER COATED STEAM FOR BETTER SEALING. DO NOT OVERTIGHTEN. THIS MAY CAUSE THE RUBBER TO PULL AWAY FROM STEAM AND PERMANENTLY DAMAGE IT.

## EXTREMELY SLOW COOKING TIME

If the cooking time is abnormally slow then the difficulty may be due to insufficient steam pressure and/or volume. First determine that pressure on incoming steam line at kettle is within 5 p.s.i. of rated kettle pressure. Note the pressures approaching the rated kettle pressure are liable to set off the safety relief valve. If required pressure is available to kettle, then possibly volume of steam is not sufficient. Minimum 3/4" pipe size is required to the kettle but if the steam generating source is at a great distance from the kettle, larger pipe will be required. Finally, the core of the steam supply pipe may have debris or scalants that impede steam flow and will require disassembly and inspection.