

# **PARTS & INSTRUCTIONS**

## **Model 30BG Gas Heated Tumbler**

**IMPORTANT: ALWAYS GIVE SERIAL  
NUMBER OF TUMBLER WHEN ORDERING  
PARTS OR DISCUSSING OPERATION**

# INSTALLATION

## THE INSTALLATION MUST CONFORM WITH A.N.S.I. OF GAS APPLIANCES & GAS PIPING Z21.30-1964

Set Tumbler level and out from the wall to allow for accessibility at the rear. (Minimum 12" from motor to wall recommended.) Locate Tumbler where least exhaust piping and elbows will be required. Use sweep elbows. The outside end of the duct should be directed downward. The exhaust must be as unrestricted as possible. Do not put window screening, a bag, or other restriction over end of duct. In installations of several tumblers where a main collector duct is used, the piping from the tumblers into it should be at an angle in the direction of the air flow. All duct work must be adequate in size. See ductwork drawing on Page 9. Provide cleanout and inspection doors in ducts. Duct work should always be inclined upward.

Check with local and state authorities regarding ductwork requirements and clearances from tumblers to combustible walls, etc.

Because entire drive mechanism is located in back, and gas unit is accessible from front, tumblers can be installed side by side and enclosed with bulkheads or partitions, but be sure there is an adequate air supply to tumbler enclosure, or gas heaters will not operate properly. When computing necessary air supply, figure each tumbler exhausts 600 cubic feet of air per minute. Outside air inlet ducts (1 sq. ft. per tumbler) from the ceiling to within a

foot of the floor or louvered vents to the outside at floor level will result in preheating air supply along the backs of the tumblers before entering gas stove in cold weather. Do not use exhaust fans in tumbler enclosure, as they will rob tumblers of make-up air.

Observe the following minimum clearances between tumblers and nearest combustible material: Sides — 1", Top — 12" (front 4" of dryer top require a clearance of only 1"), Rear — 12". (Bulkheads, partitions and braces made of non-combustible material may make contact with tumblers.) Leave clearance to allow for opening of the top front panel. In unattended installations install panels or locked doors to prevent access by public to rear of machines.

**WARNING:** Fumes from Dry Cleaning machines produce acids when drawn through gas heated tumblers and will corrode the tumbler and eat holes in the clothes being dried. When dry cleaning machines are present uncontaminated makeup air must come from the outside into the properly bulkheaded tumbler area.

**WARNING:** On dryers where a coin meter is to be installed in the field be sure that it is wired so that the coin meter timer motor continues to run-out time even with the dryer door open (dryer off).

## MOTORS

It is necessary to make connections *only* in raceway at rear of tumbler. Remainder of tumbler comes from factory completely wired. Wiring diagram is located on back of lint panel. The motor has an integral automatic-reset overload protector.

Be sure cylinder is running in clockwise direction as indicated. If motor heats excessively, have voltage and wiring checked. Low voltage is a frequent cause of motor trouble. Your local power company will be glad to check the adequacy of your power supply. Inadequate wiring and loose connections also cause trouble. Never use less than No. 12 wire. A lamp cord is inadequate and will cause motor failure.

Have a qualified electrician make the connection. Refer to motor nameplate for proper ampere rating. In case of motor trouble, wire us for nearest motor repair agency, giving serial number of tumbler and make of motor. We will not accept charges for unauthorized repairs.

Care should be taken to insure proper connections of electrical supply on single phase tumblers. Pigtail leads at top of raceway on rear of cabinet marked L1 should be connected to hot line and leads marked L2 should be connected to neutral line. Note — The Tumbler must be electrically grounded when installed, if an external source is utilized.

## GAS REQUIREMENTS AND ADJUSTMENT

While the gas connection of the tumbler is 1/2" it must not be assumed that this is the correct size for the gas line from the source of supply. It is necessary that information on the correct size of the gas line and other details pertaining to the gas connections be obtained from the gas company supplying the gas. (Also, see gas pipe size chart on page 12.) In multiple tumbler installations it is advisable to loop gas line to reduce variances in gas pressure. The proper operation of the gas burners depends upon a number of conditions involving pressure, length of gas supply line, size of pipe and number of fittings. Each tumbler is equipped with removable orifice in pilot burner assembly and main manifold designed for the type of gas specified when the tumbler is ordered. There is a large round disc on the air mixer which can be rotated to control the air mixture to the burner. Adjust this disc so as to obtain as good a flame as possible. It may be that a larger or smaller orifice might be desirable under certain conditions to produce the best possible flame and these orifices are available — but be sure to give the serial number of tumbler when ordering.

A main shut off gas cock must be placed in the gas line at each tumbler so that *all* of the gas to the tumbler can be

turned off whenever desirable such as at night, over the weekend, in case of a leak, or a necessary repair, etc. Install a ground joint type union or flange joint type union having a packing resistant to gases in gas line at rear of machine to facilitate servicing or moving of machine. Joint compounds shall be resistant to the action of liquefied petroleum gases.

The 30BG gas tumbler requires 105,000 BTU's per hour. The cubic feet of gas consumption per hour can be determined by dividing this figure by the BTU content of gas being used. Number 29 orifices are installed in 30BG tumblers ordered for use with NATURAL gas. These orifices supply the 105,000 BTU input requirement for a broad range of the natural gases furnished in North America. The shaded area on the Orifice Chart indicates those gases for which the #29 orifice is satisfactory. Check the heat value (BTU/cu. ft.) and the specific gravity of the natural gas supplied locally and change orifices if necessary. (A #29 orifice is larger than a #30 orifice. If dryers are operated with oversized orifices, overfiring of the burners will occur and could damage the loads being dried.) See Page 12 for gas pipe sizing chart.

**ORIFICE CHART**  
**30BG for use with Natural Gas**

Orifice Coefficient 0.90  
 Manifold Pressure 3.5" W.C. @ Sea Level\*

Heat Value BTU cu. ft.	SPECIFIC GRAVITY								
	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70
850	28	27	27	26	26	26	25	25	24
900	29	28	28	28	27	27	27	26	26
950	29	29	29	29	28	28	28	28	27
1,000	30	30	30	29	29	29	29	29	28
1,050	30	30	30	30	30	29	29	29	29
1,100	31	31	30	30	30	30	30	30	30
1,150	31	31	31	31	30	30	30	30	30
1,200	31	31	31	31	31	31	31	30	30

\*For elevations over 2000 feet, reduce input 4% for each 1000 feet.  
 (Ex. For elevation of 3500', reduce input 14%.)

**WARNING:** Because Liquid Petroleum gases (Propane and Butane) are heavier than air, it is essential that provision be made at floor level for escape to the outside of any accidental accumulation of gas.

The pressure regulator in the Basotrol valve reduces gas pressure to 3½" at the manifold except with propane or butane where no regulator is used. A ½" pipe connection is provided at the burner manifold for checking gas pressure and regulator adjustment. Use a manometer or pressure gauge reading in inches.

All gas piping should be tested for leaks before operating tumblers. **WARNING:** Use soap suds at all joints. Do not test with open flame.

## OPERATION

To operate, light pilot burner by raising hinged top front panel. Turn on gas (main cock handle in line with gas pipe). Depress Basotrol reset button fully and allow ample time for air to blow out of line. Touch match to pilot burner and allow flame to heat thermocouple for 30 seconds before releasing reset button. Then, close and lock top front panel. To start drying cycle, place load in cylinder, close door, select temperature and cycle, and insert coin on coin-operated tumblers or rotate timer knob clockwise on tumblers with manual timers. (Note: See Page 11 for operating Permanent Press controls.) When cycle is completed, coin meter will shut off entire tumbler. Loads may be checked at any time by opening door which will shut off tumbler automatically, although coin meter will continue to run. (Manual tumbler is equipped with an adjustable 30-minute timer which has a cooldown period for the last 4 minutes. A 15-minute timer with 2-minute cooldown and a 60-minute timer with 8-minute cooldown are available.)

There are four bi-metal temperature sensing discs, which are located under the cylinder. (See Temperature Guard Control, Page 4.) Three of these sensing discs are connected electrically to the customer-operated Temperature Selector Switch. The sensing discs turn gas off and on, according to airflow temperature leaving the cylinder: High — 180°, Medium — 160°, Low — 140°. When a customer selects the Permanent Press cycle, the 140° low-temperature sensing disc controls gas flow regardless of what position the Temperature Selector Switch is in. (To check sensing disc operation, a load should be in the cylinder, actually drying. The test thermometer should be placed

under the cylinder in the same area as the sensing discs. For the most accurate testing, use a thermometer which has a remote sensing element. Record temperature reading at the point when the gas burner cycles off. The gas burner will cycle on after airflow temperature has dropped about 15°. If you do check sensing discs, put cycle selector switch to NORMAL position.)

The remaining bi-metal temperature sensing disc is the high-temperature limit control which shuts off gas if air flow gets excessively hot. If this happens, check to make sure ductwork is constructed properly and is clean and unrestricted. Also, check that the lint panel is closed tightly, lint screen is clean, and fan is running properly. Gas will turn on again once control has cooled off and sufficient air flow is restored.

An air flow switch mounted in the raceway at the rear of the dryer cuts off the gas if the air flow is insufficient.

Glass door tells operator at a glance whether machine is in use and running.

Lint screen accessible from front provides for easy removal of lint. Lint screen is self cleaning. Lint will drop off when sufficient weight has built up. Do not brush, wash, beat or otherwise touch screen. Lint which occasionally collects around edges will not reduce efficiency, and will actually form a seal. Regular removal of lint from tumbler cabinet assures efficient tumbler operation. **DO NOT ALLOW LINT TO BUILD UP IN BOTTOM OF TUMBLER CABINET SO THAT IT RESTRICTS LINT SCREEN, OR EFFICIENCY OF TUMBLER WILL BE REDUCED! KEEP LINT PANEL CLOSED TIGHTLY WHILE TUMBLER IS IN OPERATION.**

## LUBRICATION

Chain: SAE 30 oil once a month. Motor front bearing, idler housing and trunnion housing bearings are sealed and require no oiling. Add 3 drops of oil to motor rear bearing 4 times a year. Do not oil excessively or lint may build up on motor, reduce airflow, and cause motor to overheat.

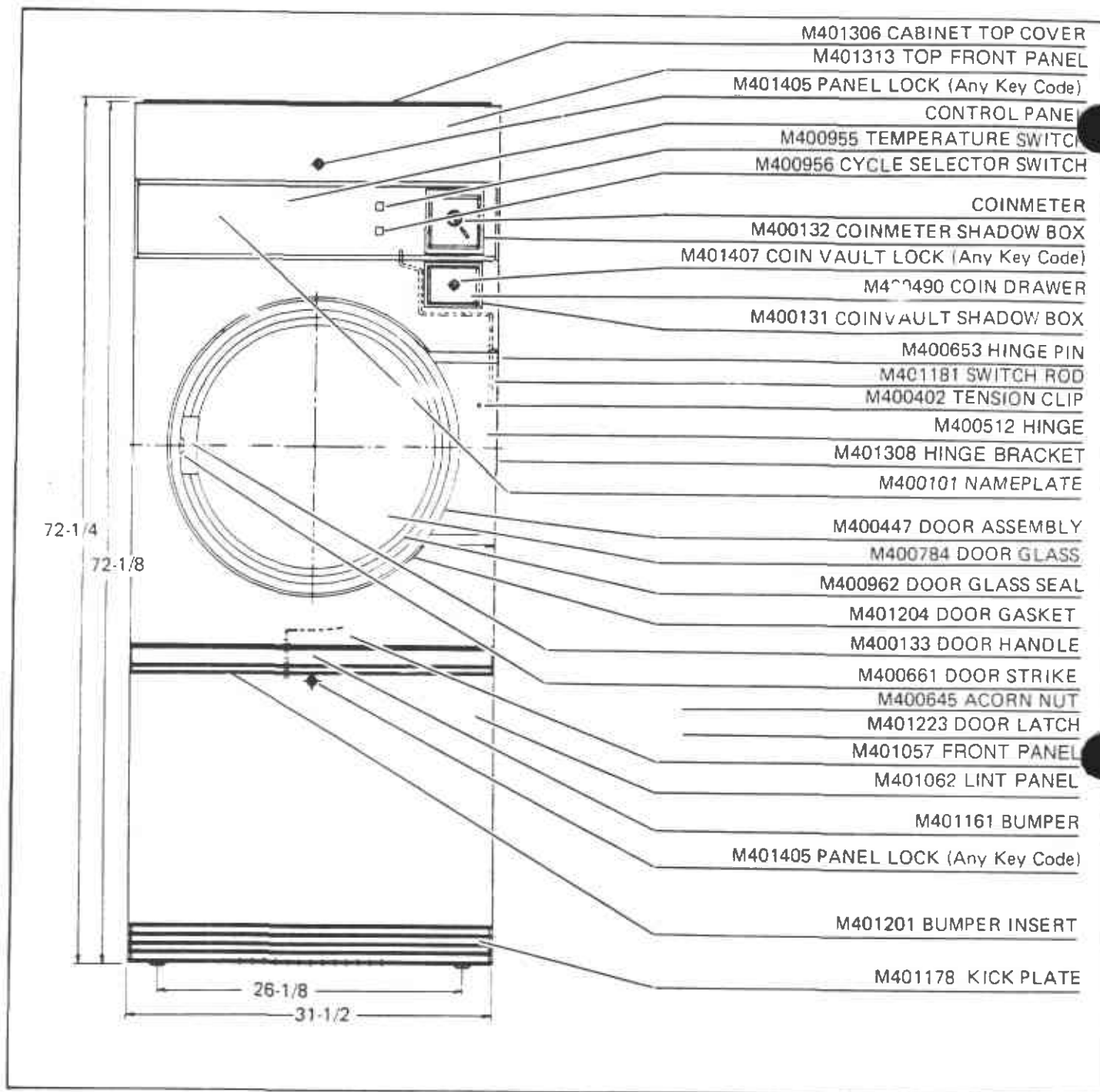
## DRYING

Drying time depends upon size of load being dried, amount of moisture removed from the load in washer-extractor (extraction), type and mass of load, air flow, and adequate heat. If "browning" occurs, this is usually the result of inefficient extraction leaving a deposit of soap in the clothes.

Do not dry plastic or rubberized articles in tumblers. Since damage to clothes can result from improper operation or installation, or from drying material not suited to tumbler

drying, we cannot be responsible for clothes processed in tumbler. Dry Cleaning fumes produce destructive acids in tumblers — see **warning** paragraphs under **INSTALLATION** on Page 2.

**WARNING:** Dry only articles that have been washed in water. Any articles that have flammable or explosive soil must be thoroughly and carefully washed. If this type of soil remains, drying can release volatile vapors which may result in fire or explosion. Do not take chances.



### COINMETER

Refer to parts list for parts and resetting instructions. To service meter, shut off all power to tumbler, raise top access panel, remove the two screws that hold modular control panel in place and lift modular control panel up and away from dryer. Disconnect plug-in connector.

All coinmeters are 115 volts, regardless of tumbler voltage. On 230 volt tumblers, resistor is wired in series with coinmeter timer motor.

### SIGNAL LIGHT

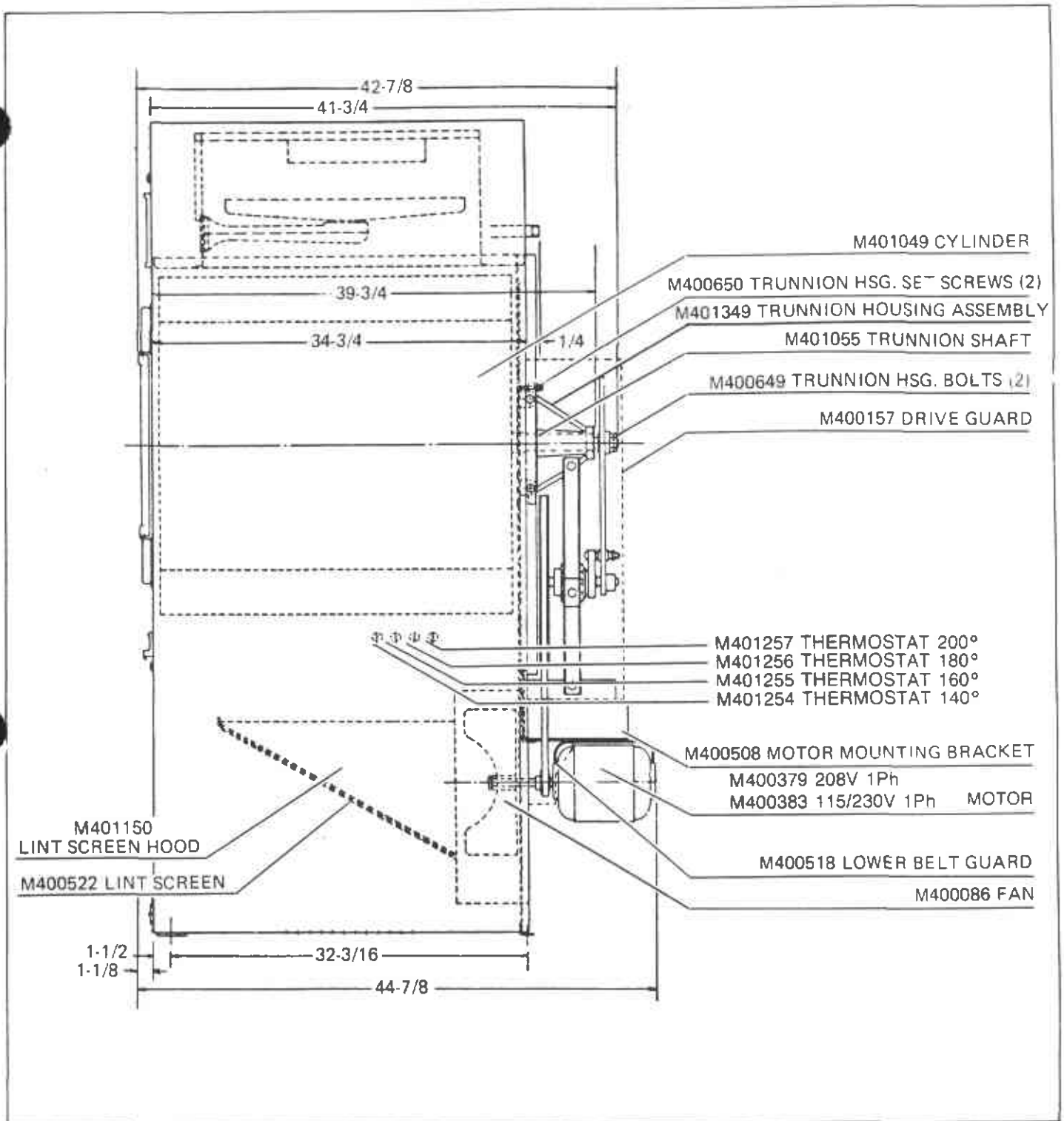
Timer-operated tumblers: If light fails, it must be replaced in its entirety. Turn off power to tumbler, disconnect wires, and remove light from panel. (Note: For use with 115 volt,

use indicator light M400703. With 230 volt, use indicator light M400704).

### TEMPERATURE GUARD CONTROL

Three bi-metal temperature sensing discs are connected electrically to the customer operated "High-Medium-Low" temperature switch. The sensing discs, which are located under the cylinder, turn gas on and off, maintaining desired temperature, until time runs out. High - 180°, Medium - 160°, Low - 140°. The 200° sensing disc is the high temperature limit control.

When a customer selects the Permanent Press Cycle, the 140° sensor controls gas burner regardless of temperature switch position.



### LINT SCREEN

Air passes through lint screen, depositing lint on under side from which it falls when sufficient weight has accumulated. If lint screen becomes damaged or clogged, it may be removed by unsnapping from lint hood.

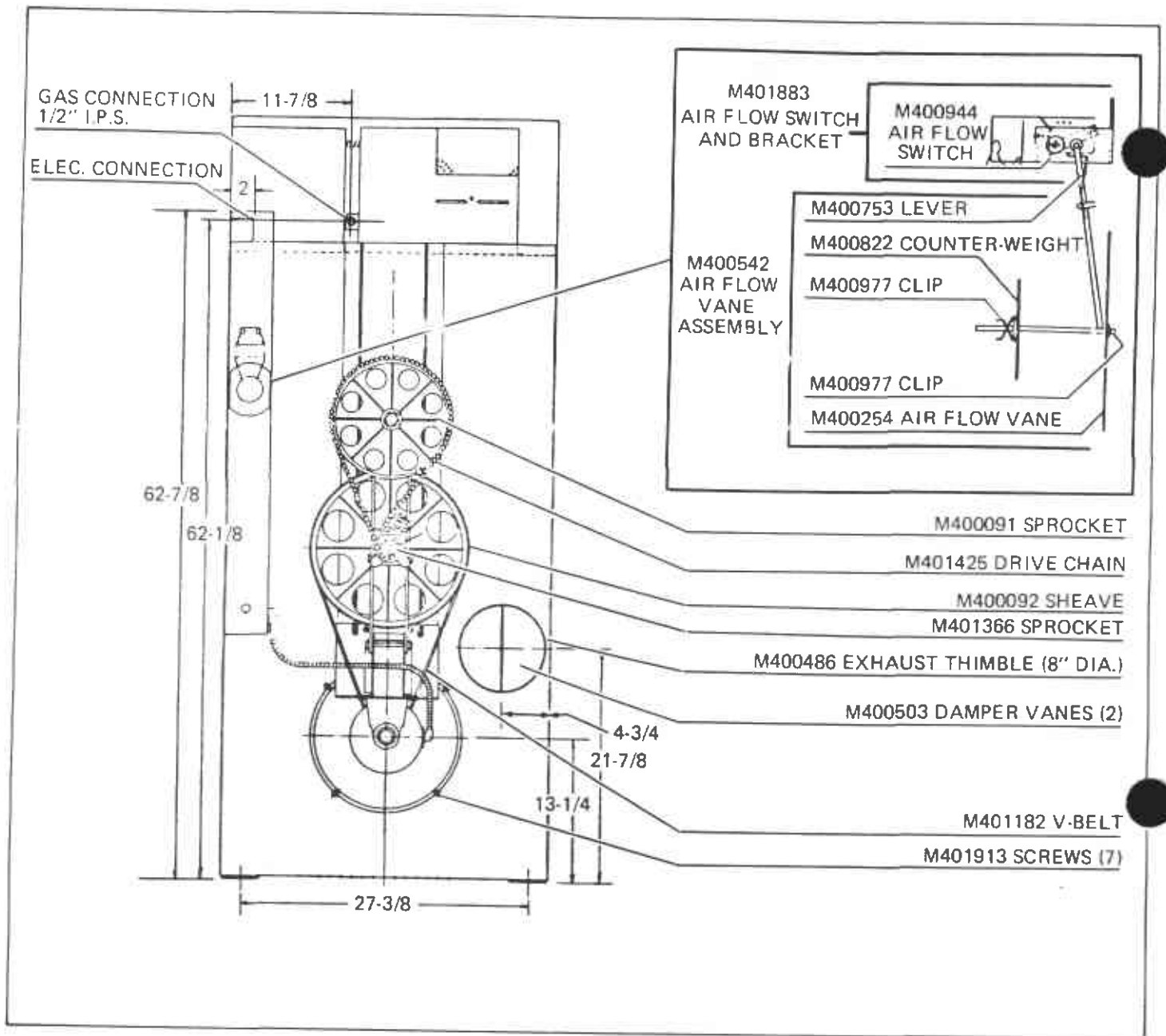
### MOTOR, MOTOR BRACKET, FAN HOUSING COVER, AND FAN ASSEMBLY

To remove, take off chain by loosening chain take-up locking bolt. Take out 5/16 x 3-3/4" bolt holding idler rails to motor bracket, and swing rails away from tumbler until belt can be removed.

Remove sheet metal screws holding fan housing cover to cabinet back. Take out bolts holding motor bracket to cabinet. To remove fan, remove 9/16-18 locknut and 9/16-18 hexnut, and pull fan off. Do not hammer directly on motor shaft.

### CYLINDER COMPLETE WITH TRUNNION AND SHAFT

To remove, take off front panel, then chain and large 72 tooth sprocket from cylinder trunnion shaft. If necessary to drive cylinder out, use block of wood or soft brass on shaft. Do not hammer on shaft directly.



### IDLER HOUSING ASSEMBLY

To remove this assembly, take off chain and remove one guide rail.

### TRUNNION HOUSING ASSEMBLY

To remove this assembly, take out cylinder. Then take out four trunnion housing bolts and top guide rail bolt. To replace trunnion bearings, see detail on Section III, page 23.

### TO ADJUST CYLINDER

Loosen four trunnion housing bolts and adjust the two trunnion housing set screws. Turning screws in will raise cylinder front end. Turning screws out will lower. Cylinder can be shifted slightly from side to side by adjusting one of the set screws.

### AIR FLOW SWITCH

Make sure air flow disc does not bind against raceway, and is

free when tumbler is not running. When replacing air flow switch, check adjustment of snap-acting switch by spacing disc out 1/4" from opening, loosen screw holding switch, and move switch in until it clicks; then tighten screw.

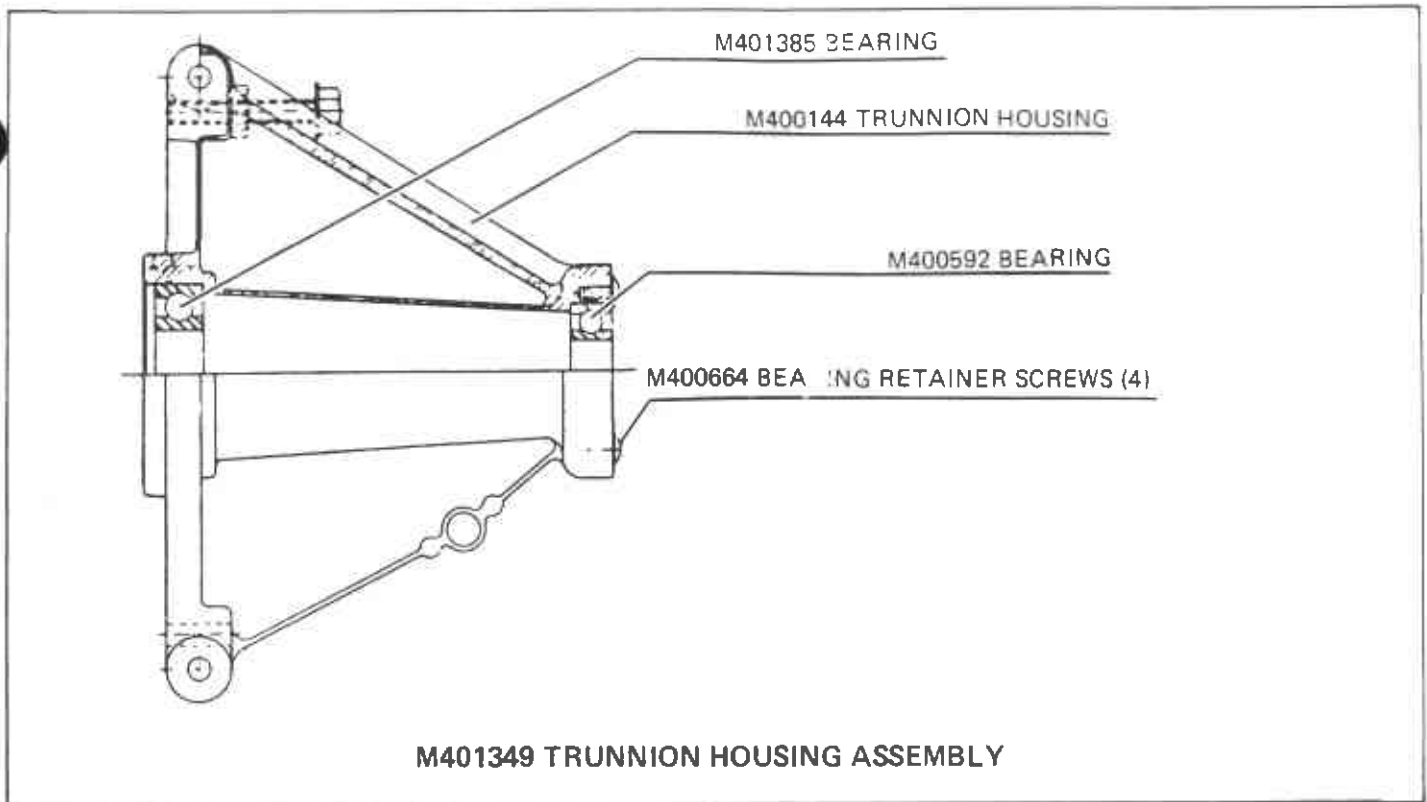
Moving adjusting weight out requires less air flow to operate. Air flow switch has been factory-set and should not be altered. Check duct for obstructions, and provide sufficient make-up air.

### TO ADJUST CHAIN

To tighten chain, first loosen chain, then loosen idler housing bolt and raise idler housing. To loosen V belt, lower idler housing.

### TO ADJUST V BELT

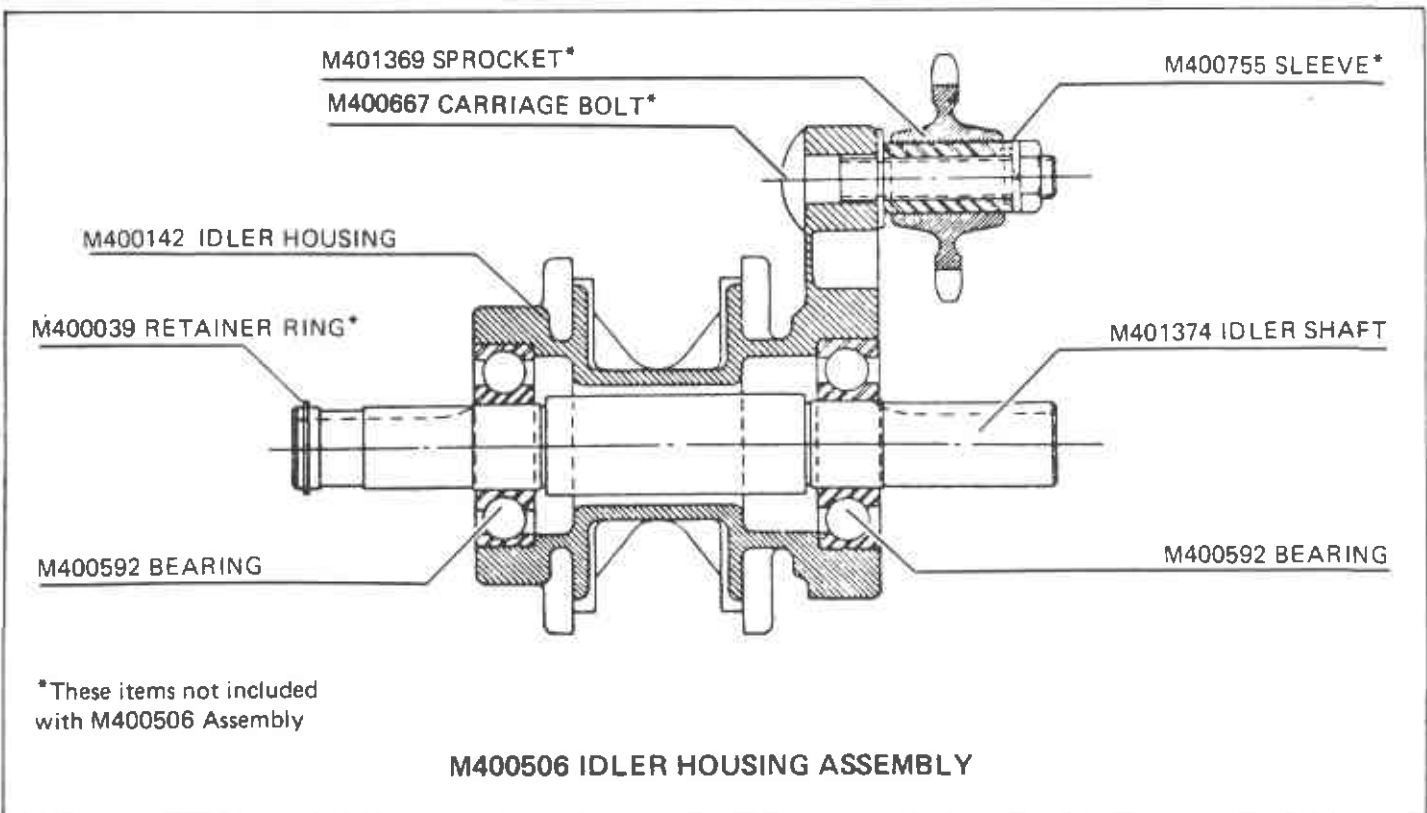
To tighten V belt, loosen chain first, and slide sprocket to the left. To loosen chain, slide sprocket to the right.



**TO REPLACE TRUNNION BEARINGS**

Remove cylinder and trunnion housing. Then remove bearing retainer screws. Insert a stick from the inner bearing side, and drive the outer bearing from cast-

ing. Then drive out the inner bearing from the outer bearing side. New bearings can then be pressed into place, making sure they are inserted straight, not at an angle. Press or tap outer race only.



\*These items not included with M400506 Assembly

**TO REPLACE IDLER HOUSING BEARINGS**

Remove housing from tumbler. Remove small sprocket

and large sheave from idler shaft. With brass or wood, drive idler shaft out of housing in either direction.

## M401317 BRACKET

M400749 GAS SUPPLY PIPE

M400329 BASOTROL RESET

M4310P3 BASOTROL COIL KIT, 115V

M4311P3 BASOTROL COIL KIT, 230V

M400934 THERMOCOUPLE

M400964 FILTER

M400516 PILOT HOLDER

M400922 PILOT BURNER ORIFICE (NAT.)

M400318 PILOT BURNER ORIFICE (L.P.)

M400766 MAIN BURNER

M400527 RESISTOR, 220V. (Not Shown)

M400000 TERMINAL BLOCK (Not Shown)

MAIN ORIFICES (2)(IN MANIFOLD)

M400697 MANIFOLD

BASOTROL, 115V (With Built-In Reg.) M401228

BASOTROL, 115V (Without Reg.) M401230

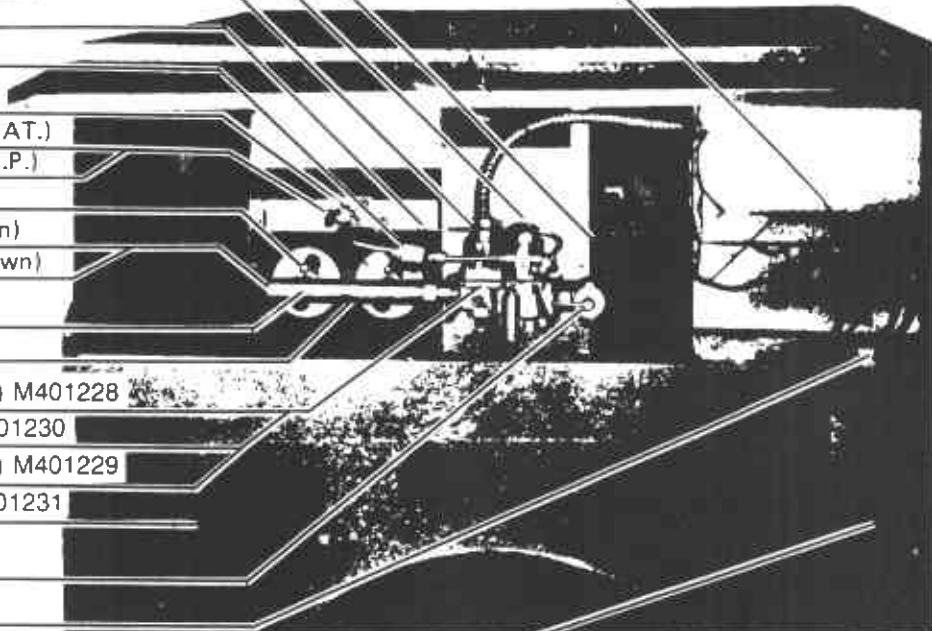
BASOTROL, 230V (With Built-In Reg.) M401229

BASOTROL, 230V (Without Reg.) M401231

M400688 GAS COCK

M400952 DOOR SWITCH

M400134 COIN FUNNEL



## GAS HEATER ASSEMBLY COMPLETE

The entire unit can be removed from the tumbler by taking out screws at right side of heater base and left side of burner flame guard, and disconnecting electric wires to Basotrol.

## BASOTROL

Basotrol unit consists of two valves. First valve allows gas to enter pilot tube when reset button is depressed, so that the pilot burner can be lit. Once flame has heated thermocouple (20-30 seconds) Baso remains open automatically, until flame is extinguished; then valve will close automatically. The second valve is wired to tumbler switch, and allows gas to enter burners when tumbler is turned on (providing pilot burner is lit), and shuts off gas flow when tumbler is turned off. If pilot burner or main burner is extinguished, or if there is a power failure, Basotrol will shut off main gas flow automatically. Entire Basotrol can be removed for servicing by disconnecting thermocouple, pilot tube, and wiring in control box. Then disconnect unions (located on either side of Basotrol) and piping to Basotrol. If Basotrol coil is defective, main burners will not light when tumbler is turned on. To re-

place Basotrol coil, remove 4 screws at base of cover. Disconnect wiring, and remove BX with fitting at coil cover. Basotrol reset assembly, thermocouple, and pilot tube can be replaced in the field by disconnecting them from Basotrol body. If thermocouple is defective, pilot will not stay lit.

To replace main orifices, disconnect union and remove manifold. Orifices can then be removed from manifold. Main burners can be removed by taking out manifold as indicated above, removing the two screws holding burners in place at the front, and pulling burners forward. To replace pilot burner orifice, remove pilot tube and unscrew orifice from pilot burner assembly.

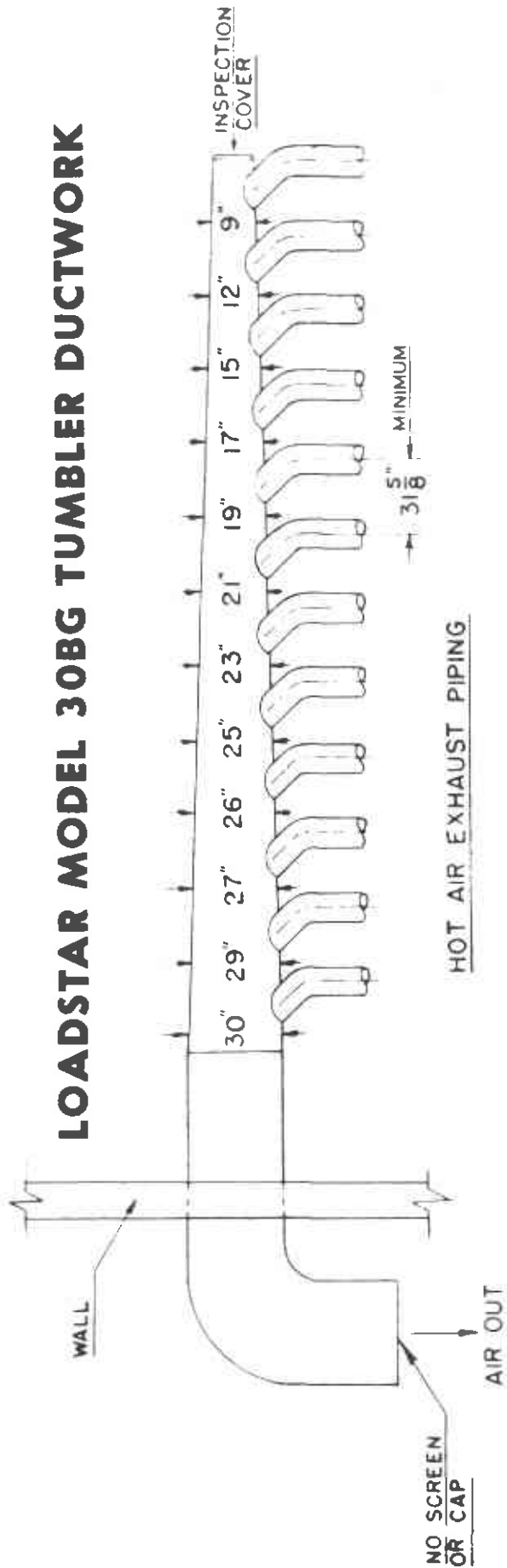
## DOOR SWITCH

Automatically turns off entire tumbler (except coinmeter) upon opening tumbler door. To adjust amount of opening to shut off tumbler, loosen two screws holding switch, and shift switch as required. Incorrect adjustment may result in tumbler being either off or on all the time, regardless of door position.

**CAUTION** – TURN OFF POWER AND GAS BEFORE SERVICING.



# LOADSTAR MODEL 30BG TUMBLER DUCTWORK



HOT AIR EXHAUST PIPING

It is essential that ductwork be adequate in size and properly constructed for efficient operation, cleanliness, customer comfort, and safety. Improper ductwork will cause back pressure resulting in slow drying, lint blowing back into room, uncomfortable heat and increased fire hazard.

It is preferable to duct tumblers individually to the outside, but frequently a main collector duct or ducts must be used. This main duct should be sized according to the chart above, which indicates minimum diameters, and should be increased whenever duct is unusually long (over twenty feet), or has numerous elbows. Main duct may be square or rectangular in cross section, as long as area is adequate.

For the unusually long (over twenty feet) duct or a duct requiring numerous elbows, for each additional twenty feet of duct, increase the entire duct diameter by 1/10, or the entire duct area by 1/5 for square or rectangular ducts. A single 90° elbow is equal to adding four feet of 6" diameter duct run, eight feet of 8" diameter, twelve feet of 10" diameter, sixteen feet of 12", etc. The entire duct diameter should be refigured accordingly.

Main collector duct should be tapered, and tumbler ducts must enter main duct at a 45° angle in the direction of air flow, never at right angles. Tumbler ducts can enter main duct at bottom or side of main duct.

The outside end of main duct should have a sweep elbow directed downward to prevent entrance of wind and rain. When main duct goes vertically through roof rather than through wall, use 180° sweep elbow on end of duct, keeping it at least 24" above roof top. Do not put screening or cap over end of duct.

Inadequate ducting may cause high temperature limit switch or air flow switch to shut off gas prematurely. Change ductwork. Do not disconnect controls, which are necessary safety devices.

If partitions or bulkheads are used in tumbler installations, be sure that minimum clearances to nearest combustible material are observed. See instructions under Installation on Page 2, as well as the instruction plate on back of tumbler.

Sufficient makeup air must be supplied to replace air exhausted by tumblers. Each tumbler exhausts about 600 cubic feet of air per minute, and requires the equivalent of one square foot of free air opening to the atmosphere for makeup air. Makeup air openings which are louvered must be larger to compensate for restrictions of the louvers. Wood louvers reduce effective area of opening by as much as 65%, metal louvers by as much as 25%.

## TROUBLE CHART -- MODEL 30BG GAS HEATED TUMBLER

TROUBLE	CAUSE	REMEDY
<b>Tumbler won't start</b>	<ol style="list-style-type: none"> <li>1. Tumbler not getting power</li> <li>2. Incorrect current</li> <li>3. No time on coinmeter</li> <li>4. Coinmeter switch not adjusted properly</li> <li>5. Door not closed tightly, or door switch not adjusted properly</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fuses and wiring to tumbler. Connection should be made only in raceway at rear of tumbler.</li> <li>2. Voltage, phase, and cycle must be same as shown on spec plate on rear of tumbler.</li> <li>3. Insert proper coin, turn knob.</li> <li>4. See coinmeter page which is inserted.</li> <li>5. See page 8 of Tumbler Instructions.</li> </ol>
<b>Tumbler won't stop</b>	<ol style="list-style-type: none"> <li>1. Coinmeter timer motor defective</li> <li>1. Main valve turned off</li> <li>2. Pilot light not burning</li> </ol>	<ol style="list-style-type: none"> <li>1. Check small window on timer motor, to see if running.</li> <li>2. Check resistor (220 volt dryers only).</li> <li>1. Turn main valve handle to in line position. See page 3 of Tumbler Instructions.</li> <li>2. Pilot burner flame should envelop thermocouple. Thermocouple may be defective. Check for tightness of thermocouple connection at Basotrol. If pilot light continually goes out, it may be due to insufficient air supply to tumbler enclosure, resulting in tumbler trying to draw air through any available crack at high velocity, thus sucking out pilot light. Each tumbler requires one square foot minimum of air opening to the outside. Pilot light may be blown out by draft from open window or door or from air supply. Baffle air supply away from gas stove area. A defective pressure regulator will cause pilot failure by momentarily starving pilot when main burners call for gas.</li> </ol>
<b>Tumbler starts, but gas won't turn on.</b>	<ol style="list-style-type: none"> <li>3. Air flow switch not actuating.</li> <li>4. Back draft dampers not open.</li> <li>5. Inadequate discharge ducting.</li> <li>6. Too much lint in bottom of tumbler.</li> <li>7. Basotrol defective, high temperature limit control defective, or temperature sensing discs defective.</li> </ol>	<ol style="list-style-type: none"> <li>3. Air flow disc should pull against dryer. Inspect and adjust. See page 6 of Tumbler Instructions. Also see step 7 below. Check ductwork for obstructions, and provide sufficient make-up air.</li> <li>4. Sheet metal men occasionally distort discharge thimble or use long screws in hooking up ductwork, thus restricting dampers. Result is restricted air flow so that air flow switch won't actuate.</li> <li>5. See 30BG Ductwork Drawing on Page 9. Inadequate duct results in air flow switch not actuating.</li> <li>6. Too much lint in bottom of tumbler cabinet may reduce air flow, resulting in air flow switch not actuating. (A buildup of 1/2" on lint screen is normal - do not brush or roughen surface of screen.)</li> <li>7. The air flow switch, high temperature limit control, and temperature sensing discs are all wired in series with the Basotrol, and each control can be easily checked for defects by putting a jumper across the two terminals of suspected control.</li> </ol>
<b>Tumbler won't dry fast. (Tumbler won't heat)</b>	<ol style="list-style-type: none"> <li>1. Inadequate ductwork.</li> <li>2. Insufficient air supply, or air supply too cold.</li> <li>3. Inadequate gas pressure or piping.</li> <li>4. Incorrect orifices or improper air mixer adjustment.</li> <li>5. Controls call for low heat.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inadequate ductwork causes overheating, resulting in high temperature limit switch turning gas off and on rapidly, and/or reducing air flow so that air flow switch won't actuate. See 30BG Tumbler Ductwork Drawing on page 9.</li> <li>2. Insufficient air supply results in poor combustion. Allow one square foot of air opening to outside for each tumbler. If air supply is too close to stove in winter the air will be too cold. Baffle air supply so that it mixes with warmer air.</li> <li>3. See pages 2, 3, and 12 of Tumbler Instructions.</li> <li>4. Tumbler must be supplied with type of gas as specified on tumbler specification plate. Different gas requires change of orifices. Larger orifices may be required if pressure is low. See pages 2 and 3 of Tumbler Instructions.</li> <li>5. Check position of temperature selector switch.</li> </ol>
<b>Tumbler noisy, or vibrating</b>	<ol style="list-style-type: none"> <li>1. Floor uneven.</li> <li>2. Chain too tight, or sprockets not in line.</li> <li>3. Large Sheave out of alignment, or rubbing against tumbler cabinet.</li> <li>4. Motor pulley out of alignment.</li> <li>5. Cylinder rubbing against cabinet.</li> <li>6. Motor loose or not aligned on motor bracket, resulting in fan rubbing.</li> <li>7. Fan out of balance.</li> <li>8. Bad Vee belt.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust all four tumbler feet so tumbler is supported at all four corners. Use of felt or rubber under tumbler feet will reduce transmission of noise from tumbler to floor, particularly on concrete floors.</li> <li>2. Adjust so there is 1/2" total movement from side to side, when chain is held half way between sprockets on left side. See page 6 of Tumbler Instructions. Move small sprocket to line up with large one.</li> <li>3. Realign sheave with motor pulley, tighten sheave by removing chain and bolt running through guide rails and motor bracket, then swing rails with large sheave away from tumbler cabinet until the two set screws can be tightened.</li> <li>4. Loosen two set screws in motor pulley and realign with large sheave.</li> <li>5. Adjust cylinder so that it is centered on door opening. See page 6 of tumbler instructions.</li> <li>6. Realign motor on bracket. Check clearance of fan by removing lint screen and checking through fan housing hole.</li> <li>7. Clean off accumulated lint. If fan blades are chipped, replace fan.</li> <li>8. Replace belt.</li> </ol>

## DRYER EQUIPPED WITH PERMANENT PRESS CONTROLS

**Coin Metered Dryers** with *Permanent Press Cycle* coin meters provide the laundry store customer with the choice of a Normal Drying Cycle, or of a Permanent Press Drying cycle that includes cool down time within the overall paid-for time period.

**NORMAL CYCLE:** The customer pushes the selector switch that is mounted on the front panel of the dryer to *Normal Cycle* and inserts money. Dryer will operate through a regular cycle as described on page 3, *Operation*.

**PERMANENT PRESS CYCLE:** The customer pushes selector switch to *Permanent Press Cycle* and inserts money. The dryer will then start to operate as in a regular cycle, but heat will be turned off according to the time setting of the cool down timer adjustment screw. The dryer will keep running without heat, and the load will be cooled by air at room temperature until total accumulated meter time expires.

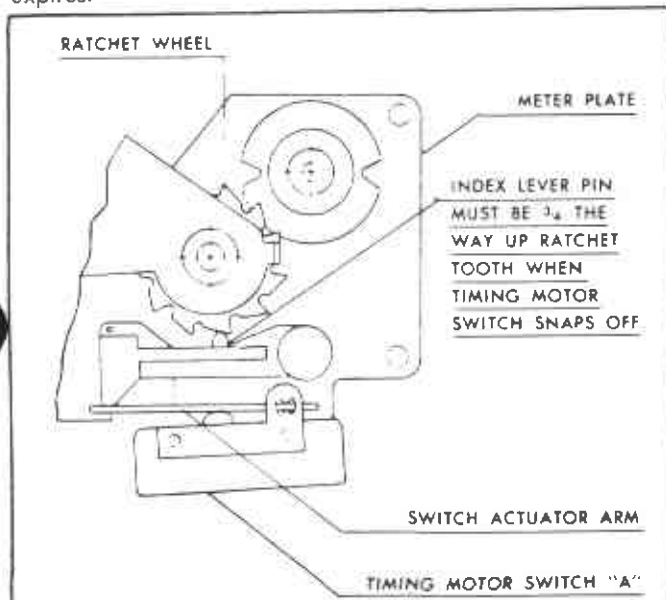


FIG. 1

Figure 1 shows the ideal condition for the timing motor switch — switch will snap off at the point where the pin on the index lever is three quarters ( $\frac{3}{4}$ ) of the way up the ratchet tooth.

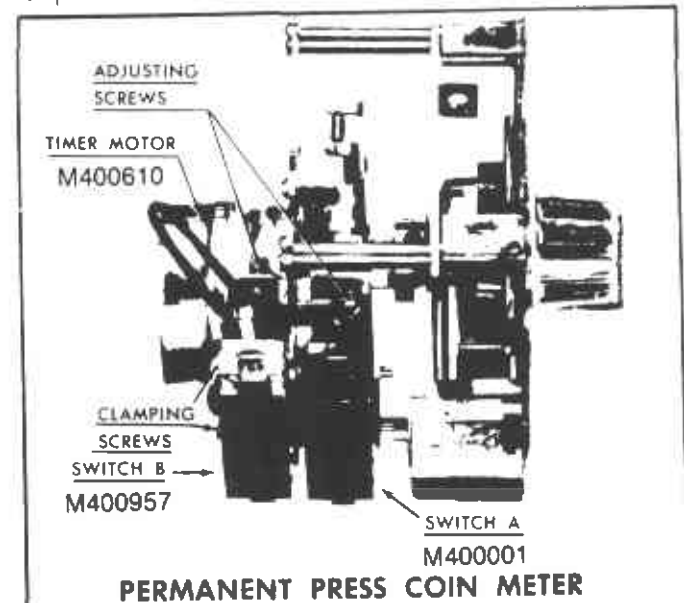
**CAUTION:** Only if necessary, slightly rotate adjusting screw up or down — testing between each adjustment — until ideal condition is met.

**TO OPERATE DUAL-COIN METERS:** The knob must be turned after each coin is inserted. The time difference between 10¢ and 25¢ is fixed at a 1 to 3 ratio. Example: If meter has a  $7\frac{1}{2}$  minute cycle for 10¢, it will give a  $22\frac{1}{2}$  minute cycle for 25¢. If customer inserts 10¢, turns knob, then inserts 25¢ and turns knob, she will get the accumulated time of  $7\frac{1}{2}$  plus  $22\frac{1}{2}$  or 30 minutes.

**Timer Operated Dryers** for use with Permanent Press Fabrics provide cool down with a dual timer system.

**SWITCH ADJUSTMENT:** The permanent press coin meter has two electric switches, each with separate adjustment. Before adjusting either switch, shut off power to dryer. Be sure both switches are fully down (away from motor) and that the two clamping screws are secure. Do not over-tighten; you may crush a switch. Switch A shuts off electricity at end of accumulated metered time. Adjustment should be made only if dryer shuts off too soon or runs overtime. See figure 1 for instructions. If necessary to adjust this switch, check cool down time afterward and adjust switch B if necessary.

**ADJUSTMENT OF COOL DOWN TIME:** Permanent press coin metered dryers leaving our factories are set for a cool down period of approximately five minutes, during which heat is turned off and load is cooled by air at room temperature until meter time runs out. See figure 2.



M401190 (10¢)  
M401189 (25¢)  
M402709 Dual Coin

FIG. 2

Switch B controls length of cool down period. Turn adjusting screw clockwise for more cool down time, counter clockwise for shorter cool down time. Maximum cool down time is about six minutes; minimum cool down time two minutes.

Set drying time on *Drying Timer* and set *Cool Down Timer* for the minutes of cooling time desired. When drying timer runs out, heat will shut off and room air will cool the load until cool down timer runs out and dryer shuts off. Total tumbling time is cool down time added to drying time. (Example: Drying time 20 minutes, plus cooling time 5 minutes, equals total time 25 minutes.)

Permanent Press items should be removed promptly when dryer stops. Shirts, blouses, uniforms, and similar articles should be hung on hangers at once.

TOTAL BTU. HR (Add requirements of dryers and all other gas fired equipment)	GAS PIPE SIZE REQUIRED FOR 1000 BTU NATURAL GAS AT 7" W. C. PRESSURE					
	In figuring total length of pipe, make allowance for Tees and Elbows					
	25 FT	50 FT	75 FT	100 FT	125 FT	150 FT
60,000	1/2	3/4	3/4	3/4	3/4	3/4
80,000	3/4	3/4	3/4	1	1	1
100,000	3/4	3/4	1	1	1	1
120,000	3/4	1	1	1	1	1
140,000	3/4	1	1	1	1	1 1/4
160,000	3/4	1	1	1 1/4	1 1/4	1 1/4
180,000	1	1	1	1 1/4	1 1/4	1 1/4
200,000	1	1	1 1/4	1 1/4	1 1/4	1 1/2
300,000	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2
400,000	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2
500,000	1 1/4	1 1/2	1 1/2	2	2	2
600,000	1 1/2	1 1/2	2	2	2	2
700,000	1 1/2	2	2	2	2	2 1/2
800,000	1 1/2	2	2	2	2 1/2	2 1/2
900,000	2	2	2	2 1/2	2 1/2	2 1/2
1,000,000	2	2	2	2 1/2	2 1/2	2 1/2
1,100,000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,200,000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,300,000	2	2 1/2	2 1/2	2 1/2	2 1/2	3
1,400,000	2	2 1/2	2 1/2	2 1/2	3	3
1,500,000	2	2 1/2	2 1/2	2 1/2	3	3
1,600,000	2	2 1/2	2 1/2	3	3	3
1,700,000	2	2 1/2	2 1/2	3	3	3
1,800,000	2 1/2	2 1/2	3	3	3	3
1,900,000	2 1/2	2 1/2	3	3	3	3
2,000,000	2 1/2	2 1/2	3	3	3	3 1/2
2,200,000	2 1/2	3	3	3	3 1/2	3 1/2
2,400,000	2 1/2	3	3	3	3 1/2	3 1/2
2,600,000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
2,800,000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
3,000,000	2 1/2	3	3 1/2	3 1/2	3 1/2	4
3,200,000	3	3	3 1/2	3 1/2	3 1/2	4
3,400,000	3	3 1/2	3 1/2	3 1/2	4	4
3,600,000	3	3 1/2	3 1/2	3 1/2	4	4
3,800,000	3	3 1/2	3 1/2	4	4	4
4,000,000	3	3 1/2	3 1/2	4	4	4

BASED ON 0.3" W.C. PRESSURE DROP FOR LENGTH GIVEN

For bottle gas, correct the total BTU/HR by multiplying it by .6. The answer is the equivalent BTU on the above chart.

WARNING

INSTALLATION MUST CONFORM WITH AMERICAN NATIONAL STANDARD Z223.1 1974 "NATIONAL FUEL GAS CODE" IN THE U.S.A. AND STANDARDS CGA B149.1 "INSTALLATION CODES FOR GASBURNING APPLIANCES AND EQUIPMENT" IN CANADA AND/OR LOCAL CODES.

**WARNING**

IT IS THE RESPONSIBILITY OF THE PURCHASER OF THIS MACHINERY TO TRAIN HIS OPERATING PERSONNEL IN THE PROPER MANNER OF OPERATION.

IT IS FURTHERMORE UNDERSTOOD THAT THE MANUFACTURER ASSUMES NO RESPONSIBILITY FOR INJURY, DISABILITY OR DEATH RESULTING FROM IMPROPER OPERATION OF, OR REMOVAL FROM OR BYPASSING THEREOF ANY ELECTRICAL OR MECHANICAL SAFETY DEVICES INCORPORATED IN THE DESIGN AND MANUFACTURING OF THIS MACHINERY.



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