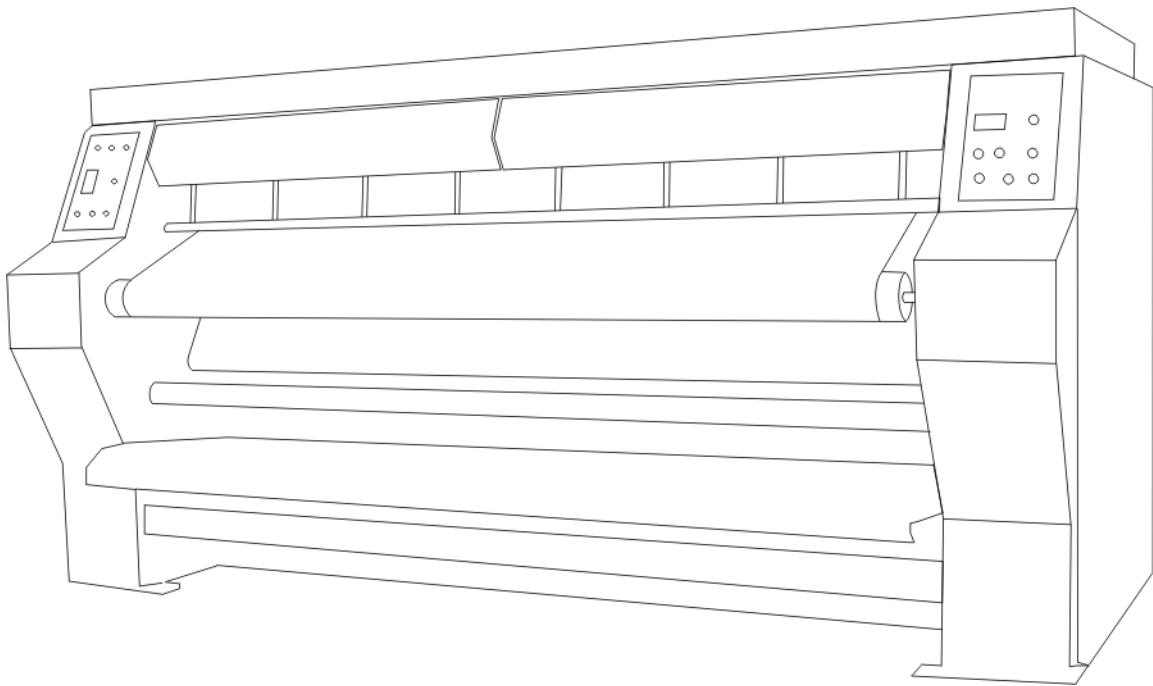


Ironer

IS Series Installation and Operation Manual

April 2, 2012
Revision 1.5



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Chapter 1

Important Safety Information

1.1 FOR YOUR SAFETY - CAUTION!

WARNING: For your safety the information in this manual must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- WHAT TO DO IF YOU SMELL GAS:
 - Do not try to light any appliance
 - Do not touch any electrical switch; do not use any phone in your building.
 - Clear the room, building or area of all occupants.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Contact your local gas supplier to obtain particular instructions in the event that a user smells gas. Place this sheet and any other instructions obtained from your gas supplier in a prominent location.

Chapter 2

Important Instructions

2.1 Before Attempting Repairs



⚠ WARNING

Rollers and other moving parts can cause serious injury or death. Before attempting repairs, follow proper shutdown procedures, remove power, and allow the machine to fully cool before commencement of service. Before electrical service begins, allow at least 5 minutes after power has been removed to allow the AC inverter drive to discharge.

Safety is of primary concern with any maintenance or repair operation. If you are in any way unsure of how to proceed with a repair or adjustment, consult this manual, a qualified maintenance technician, your local distributor, or the B&C Technologies Technical Service Department at 850-249-2222.

Only trained and experienced personnel should attempt maintenance or repair work on this equipment. Follow all safety procedures including lock-out/tag-out procedures carefully. Ensure that any loose fitting clothing or jewelry is tucked in or not worn to avoid being pulled into the machine. Remember, the machine has no brain - you must use your own.

Before attempting repairs, follow proper shutdown procedures, remove power, and allow the machine to fully cool before commencement of service. Before electrical service begins, allow at least 5 minutes after power has been removed to allow the AC inverter drive to discharge.

Never attempt to clean or service any area of the machine without removing power at the main

disconnect and allowing time for the machine to cool completely.

There are certain jobs that must be performed with the ironer running at the slowest possible speed. In this instance, another person must be stationed at the disconnect to immediately remove power if needed. Always avoid moving rolls and be especially aware of pinch points where two or more rolls come together.

Read, follow, and obey these safety rules! The B&C Technologies Technical Service Department is available to answer any questions you may have about the operation and servicing of your machine. Please call with any questions or concerns about the operation of your machine.

2.2 Operator Safety Notes



⚠ WARNING

NEVER ATTEMPT TO REMOVE OR ADJUST JAMMED LINEN WHILE THE MACHINE IS IN OPERATION. Attempting to reposition or free jammed linen while the machine is under power can result in machine damage (best case) or serious injury or death (worst case). **REMOVE POWER TO THE MACHINE** and allow it to cool before attempting removal of jammed goods. Ironer surfaces can reach temperatures well in excess of 400 degrees Fahrenheit (205 degrees Celsius), not something you want to touch.

NEVER REACH around the safety guards or into any area near heated surfaces or moving parts without first powering down the machine and allowing it to cool. Failure to follow this instruction can lead to serious injury or death.

Check operation of the finger safety guard at the start of every work shift. Activating this guard should stop the machine. If this important safety device is not working, power off the machine and notify your manager. **DO NOT OPERATE THE MACHINE** until the safety guard is working properly.

Make sure that all guide tapes and belts are in place and tensioned properly. Missing or improperly adjusted tapes and belts will cause performance, quality, and production problems.

Only flatwork should be processed in the ironer – processing goods the machine is not designed to handle can lead to damage to the machine or personal injury.

Do not stand, sit, or kneel on any part of the ironer's front or rear – these parts are not designed to carry your weight.

Follow all lock-out/tag-out procedures when servicing the ironer. Remember, when servicing the machine, power must be disconnected at the main disconnect switch.

Only you can protect yourself by reading and understanding these precautions. Help protect others by making sure all personnel follow these instructions. Do not wear loose clothing or jewelry while operating this machine. Stay away from moving parts and heated rolls.

If in doubt, ask your manager or contact Technical Service to find out how to safely operate the ironer. Remember, only those qualified should service the ironer.

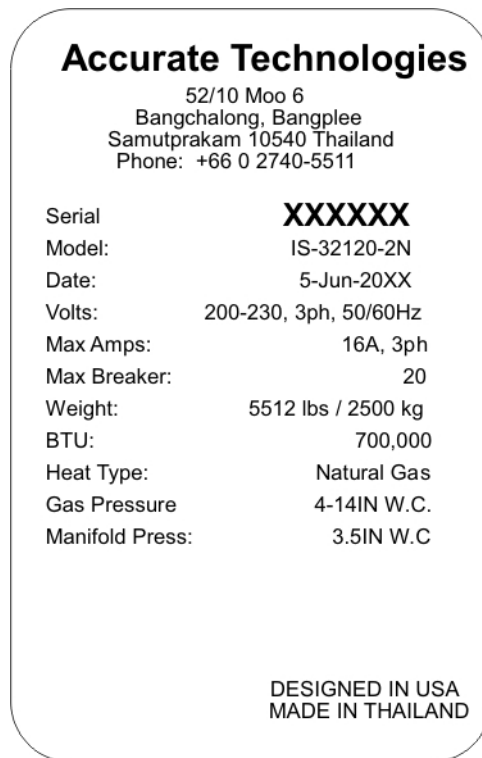


Figure 2.1: Serial Decal

2.3 Parts Ordering Information

If you require literature or spare parts, please contact your local distributor. If a local distributor is unavailable, you may contact B&C Technologies directly at (850) 249-2222 for the name of your nearest parts dealer.

For technical assistance in the United States, contact B&C Technologies:

(850) 249-2222 Phone

(850) 249-2226 FAX

parts@bandctech.com

www.bandctech.com

2.3.1 Nameplate Location

When contacting B&C Technologies about your equipment, please make note of the model and serial number, located on the nameplate as shown in figure 2.1.

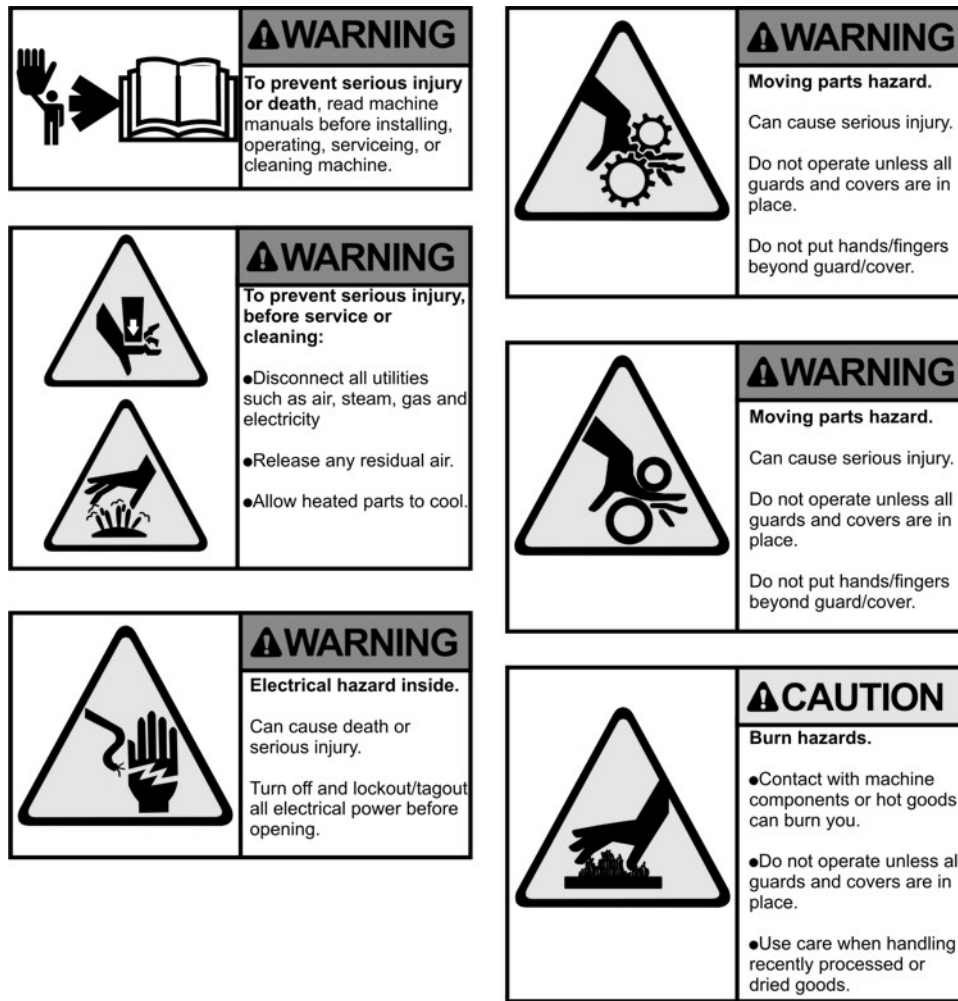


Figure 2.2: Key Symbols

2.4 Key Symbols

Anyone operating or servicing this machine must follow the safety rules in this manual. Particular attention must be paid to the DANGER, WARNING, and CAUTION blocks which appear throughout the manual and shown in figures 2.2 on page 6 and 2.3 on page 7.



Figure 2.3: Key Symbols

Chapter 3

Installation

3.1 Safety Instructions

3.1.1 Installation Notice

For personal safety and for proper operation, the machine must be grounded in accordance with state and local codes and in the USA in accordance with the National Electric Code, article 250-96. Elsewhere, the equipment should be grounded in accordance with ANSI/NFPA 70, or the Canadian Electrical Code, CSA C22.1. The ground connection must be to a proven earth ground, not to conduit or water pipes.

Natural Gas or Liquid Propane Gas (LP Gas) heated equipment installation must comply with state and local codes, and in the USA, in accordance with the National Fuel Gas Code. Elsewhere, the equipment should comply with ANSI Z22.1, or CSA B149.

Provisions must be made for adequate make-up air and ventilation, and access for equipment service and installation.

Installation and Operational Safety Instructions

1. Read all instructions prior to operating this equipment.
2. Ensure that the equipment is properly grounded before applying power and operation commences.
3. Do not process goods that have been previously cleaned in, soaked in, or exposed to gasoline, dry cleaning chemicals, or any other flammable or explosive materials, as they could catch fire or explode without warning, even after being washed.
4. Do not allow children to play in or around or operate this equipment.
5. Check the operation of all safety interlocks at the start of every shift. If the interlocks do not stop the equipment immediately, the machine must be removed from service. Notify your immediate supervisor, and do not operate the machine.

6. Never attempt to service the machine while it is running. Never reach over, under, around, or behind any safety device, or into any area near moving parts or hot surfaces without shutting off power and allowing the machine to adequately cool.
7. Read, understand, and follow all safety instructions. Do not come close to moving parts and hot surfaces. Do not wear loose clothing, jewelry, neckties, or any other garment that could become caught in the machine while operating or near the machine.
8. Only a qualified technician should attempt to service or repair the machine.
9. Do not install the machine in an area where it could be exposed to water or weather.
10. Do not alter or tamper with the control system.
11. To reduce the risk of fire, do not process plastics or articles containing foam rubber or similarly textured rubber-like materials.
12. Keep the area near the exhaust ducting clean and free of lint, dust, dirt or debris.
13. Keep the interior and exterior of the machine clean of lint, dirt, dust and debris. The interior of the machine, along with the exhaust ductwork should be periodically inspected and cleaned to avoid potential fires (lint is highly flammable).
14. Improper installation, operation and maintenance of this machine can cause exposure to substances in the fuel or from combustion that can cause serious illness or death. The machine must be exhausted to the outside.
15. Always disconnect the electrical service from the machine and allow it to cool before performing service.
16. This machine must be installed according to the installation instructions. All exhaust, electrical connections, and gas or steam connections must comply with state and local codes and must be made by a licensed installer where required.

3.2 Installation

3.2.1 Receiving Inspection

Upon receipt of the equipment, visually inspect for shipping damage and note any damage with the carrier before signing the shipping receipt, or advise the carrier of the damage as soon as it is noted.

If damage is discovered, a written claim must be filed with the carrier as soon as possible.

Note: Warranty is VOID unless the equipment is installed according to instructions. The installation must comply with the minimum requirements listed in this manual. All national, state and local codes must be followed including but not limited to gas, electrical, plumbing and HVAC. Due to various requirements, statutory codes should be well understood before installation commences.

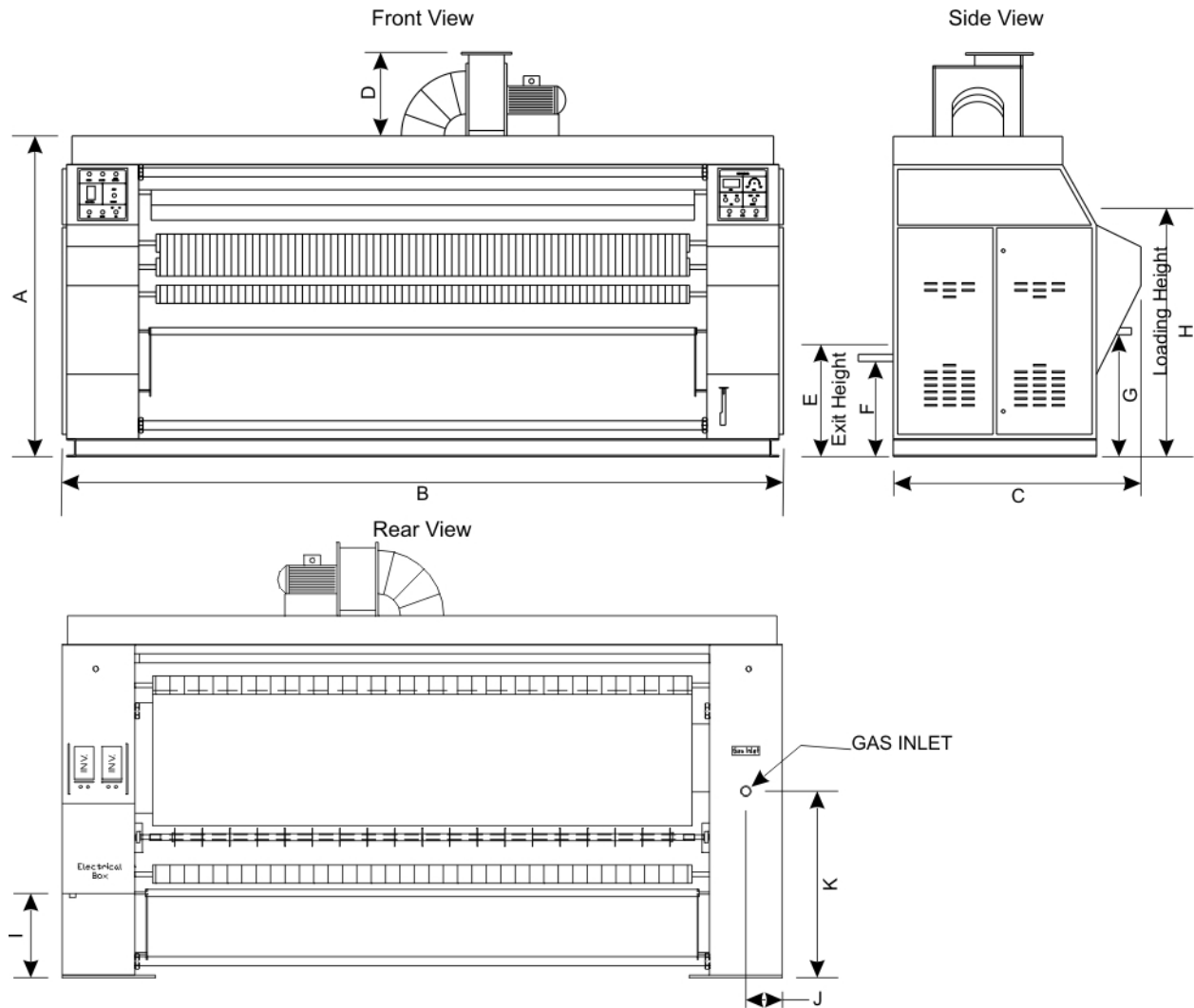


Figure 3.1: IS Series Utility Connection Points

3.2.2 General Specifications and Utility Connection Points

Figure 3.1 on page 10 and Tables 3.2 and 3.1 on pages 12 and 11 describe the necessary utility connections for the IS Series Ironer.

3.3 Site Requirements

3.3.1 Service Clearance

Figure 3.2 on page 13 shows the recommended minimum service clearances. The dimensions shown are needed to adequately service and operate the machine with maximum efficiency. Re-

Table 3.1: IS Series Utility Reference

Dimension	IS-14120		IS-18120		IS-24120		IS-32120	
	inch	mm	inch	mm	inch	mm	inch	mm
A	66	1676	71.57	1818	71.57	1818	79.5	2019
B	159	4039	159.84	4060	159.87	4061	159	4039
C	32.5	826	33.9	861	45.51	1156	62.5	1588
D	18.25	464	25.88	657	24.6	625	18.25	464
E	24.38	619	25	635	25	635	26.5	673
F	18	457	19.29	490	19.29	490	18	457
G	25	635	27.17	690	27.17	690	21.5	546
H	48	1219	49.75	1264	47.1	1196	48	1219
I	16	406	16	406	16	406	16	406
J	9.75	248	9.75	248	9.75	248	8.5	216
K	37.25	946	45.5	1156	41.93	1065	46.5	1181

ducing this clearance is not recommended. You must allow space around the machine for maintenance.

3.3.2 Floor Requirements

The installation site must have flooring capable of supporting the weight of the machine without flexing. Consult the general specifications in the previous section for specific details on the machine's weight and other technical specifications. No special foundation, grouting, or anchoring is required by the manufacturer, but some shimming may be required so that the machine is completely level. Always follow local codes when performing a machinery installation. It is the responsibility of the installer to be familiar with the requirements of local codes.

3.3.3 Gas Requirements

The ironer requires a significant gas service capable of providing the volume and pressure needed to achieve the BTU rating of the particular machine. Typical gas pressure ranges from 12 inches water column to 2 PSI with ratings up to 825,000 BTU. Refer to the previous section for gas connection sizing, gas pressure requirements and BTU ratings.

3.3.4 Exhaust Duct Requirements

A short run of exhaust vent ducting is required and must be procured locally. Adequate ventilation is required and must meet all local codes. Refer to the previous section for airflows and other

Table 3.2: IS Series General Specifications

General Specifications										
Model			IS-14120		IS-18120		SI-24120		IS-32120	
	Metric	US								
Number of Rolls			1		1		1		1	
Roll Diameter	mm	inch	356	14	457	18	610	24	813	32
Working Width	mm	inch	3048	120	3048	120	3048	120	3048	120
Speed Range	m/min	ft/min	2.5-11	8-36	2.5-14	8-45	3.75-22	12-75	4.5-30	15-98
Dimensions										
Width	mm	inch	4056	159.69	4056	159.69	4056	159.69	4056	159.69
Depth	mm	inch	820	32.28	855	33.66	1156	45.51	1582	62.28
Height	mm	inch	1920	75.59	2195	86.42	2325	91.54	2500	98.43
Canopy Height	mm	inch	340	13.39	500	19.69	500	19.69	500	19.69
Exhaust System										
Air Flow	cmm	cfm	30.5	1080	50	1765	50	1765	50	1765
Exhaust Duct	mm	inch	228.6	9	254	10	254	10	254	10
Drive Information										
Drive Motor	kW	HP	0.75	1	0.75	1	1.1	1.5	2.2	3
Delivery Motor	kW	HP	0.25	1/3	0.25	1/3	0.25	1/3	0.25	1/3
Blower Motor	kW	HP	0.75	1	1.5	2	1.5	2	1.5	2
Steam										
Consumption	BHP		3.8		4.4		6		8	
Pressure	bar	psi	6.3-8.8	90-125	6.3-8.8	90-125	6.3-8.8	90-125	6.3-8.8	90-125
Inlet Size	mm	inch	19.1	0.75	19.1	0.75	25.4	1	31.8	1-1/4
Outlet Size	mm	inch	12.7	0.5	12.7	0.5	19.1	0.75	25.4	1
Gas										
Heat Input	BTU		260,000		285,000		620,000		825,000	
Gas Inlet Size	mm	inch	12.7	0.5	25.4	1	25.4	1	25.4	1
Weight & Shipping										
Net Weight	kg	lbs	1140	2508	1730	3806	2180	4796	2500	5500
Shipping Weight	kg	lbs	1290	2838	1910	4202	2390	5258	2740	6028

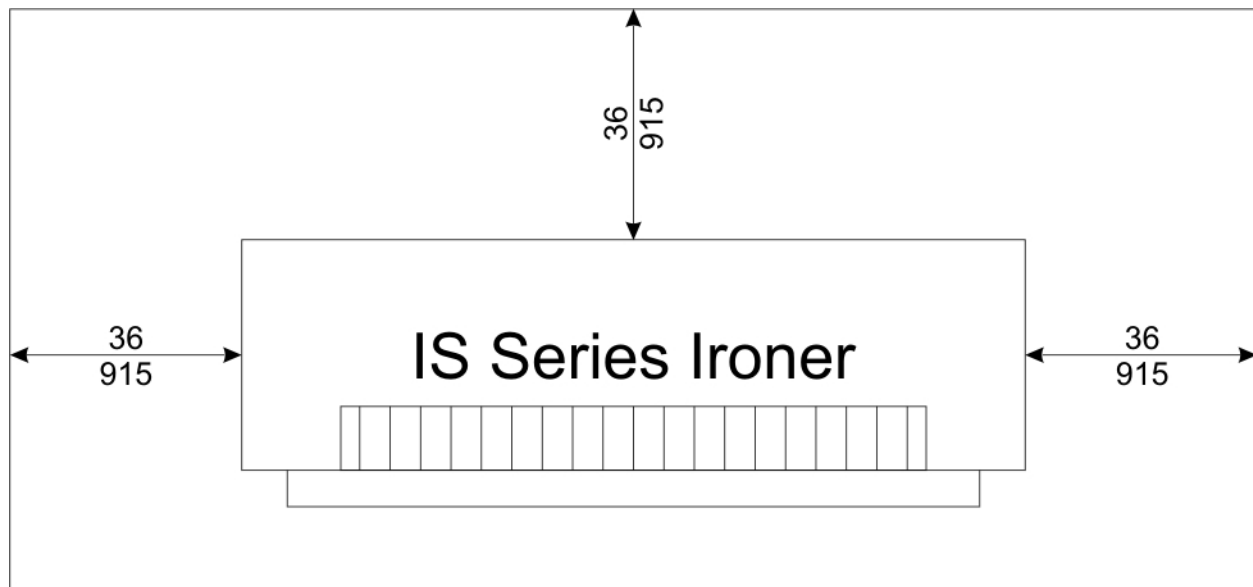


Figure 3.2: IS Series Recommended Service Clearance

pertinent information.

Important: Do not interrupt the flow of make-up air or the exhaust!

Use the shortest possible path with the fewest number of bends to connect to the outlet ductwork. Measured backpressure should not exceed 0.3 inches of water column pressure for reliable ignition and best results.

Note: Check for proper exhaust fan rotation direction before placing the equipment into service. If the rotation is incorrect, remove power from the machine and exchange any two incoming power leads.

3.3.5 Electrical Requirements

Pay attention to the nameplate of the machine - it contains the specific electrical requirements of the machine. Additional requirements can be found in the previous section.

Note! Do not use phase adders (roto-phase) on inverter driven equipment!

The machine should be connected to an individual branch circuit not shared with lighting or other equipment.

A lockable, load break rated, visible break disconnect switch with safe working clearances is required for all installations. A disconnect plug is also acceptable, so long as it is able to safely break the load, is in an accessible location, and can be locked.

The connection should be shielded in a liquid tight or approved flexible conduit with proper conductor of correct size installed in accordance with National Electric Code (USA) or other applicable codes. The connection must be made by a qualified electrician using the wiring diagram provided with the machine.

For personal safety and for proper operation, the machine must be grounded in accordance with state and local codes and in the USA in accordance with the National Electric Code, article 250-96.

The ground connection must be to a proven earth ground, not to conduit or water pipes.

Do not connect the ground to the neutral (N) leg at the terminal strip.

If a DELTA supply system is used, the high leg should be connected to T or L3, as control power is derived from L1 & L2.

3.3.6 Electrical Connection

Electrical connections should be made by a qualified electrician in accordance with all applicable codes or requirements. Use a separate branch circuit to power each machine. Do not share circuits with lighting or any other equipment.

A shielded liquid tight or approved flexible conduit with proper conductor of correct size installed in accordance with National Electric Code (USA) or other applicable codes is required. The connection must be made by a qualified electrician using the wiring diagram provided with the machine.

For personal safety and for proper operation, the machine must be grounded in accordance with state and local codes and in the USA in accordance with the National Electric Code, article 250-96. The ground connection must be to a proven earth ground, not to conduit or water pipes.

Insure that the control transformer taps are connected in accordance with the incoming line voltage. Verify connections as shown on the schematic with each machine.

Table 3.3: IS Series Electrical Specifications

Gas/Steam Heat Models			
Rating	Model	Amps	Breaker
208-230V, 50/60Hz	IS-14120	8A, 3ph	15
	IS-18120	10A, 3ph	15
	IS-24120	12A, 3ph	15
	IS-32120	16A, 3ph	20
380-480V, 50/60Hz	IS-14120	4A, 3ph	15
	IS-18120	5A, 3ph	15
	IS-24120	6A, 3ph	15
	IS-32120	8A, 3ph	15

3.3.7 Gas Supply Line

- 1" IPS pipe is recommended.
- 1" approved tubing is acceptable for lengths under 25 ft (6.1 m) if local codes and gas supplier permit.

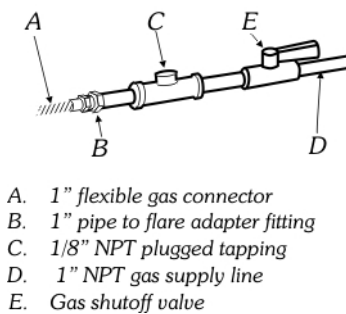


Figure 3.3: IS Series Gas Supply Detail

Must include 1/8" NPT minimum plugged tapping accessible for test gauge connection, immediately upstream of the gas connection to the ironer (see Figure 3.3 on page 15). Must include a shutoff valve:

An individual manual shutoff valve must be installed within 6 feet (1.8m) of the equipment in accordance with the National Fuel Gas Code, ANSI Z223.1. The location should be easy to reach for opening and closing.

3.3.8 Gas Supply Connection Requirements

There are many methods by which the IS series Ironer can be connected to the gas supply. Following are some guidelines for methods of connection.

Option 1

Flexible stainless steel gas connector:

If local codes permit, use a new flexible stainless steel connector (Design certified by the American Gas Association or CSA International) to connect between the ironer and the gas supply line. Use an elbow and a 1" flare x 1" NPT adapter fitting between the stainless steel gas connector and the gas inlet of the machine as needed to prevent kinking.

Option 2

Other approved piping:

- Lengths under 25 feet (6.1m) use 1" approved tubing.
- Lengths over 25 feet (6.1m) should use larger piping.

Pipe joint compounds that resist the action of gas must be used. DO NOT USE TEFLON®/PTFE TAPE.

IMPORTANT: Be certain the ironer is configured for the type of gas being used. The gas type is shown on the serial sticker on the electrical panel of the unit.

3.3.9 Inlet Pressure

Use a manometer to verify that the inlet pressure meets the following requirements:

Natural Gas service must be supplied at 4-14 inches of water column pressure.

LP Gas service must be supplied at 11-14 inches of water column pressure.

3.3.10 Manifold Pressure

Be sure to check the manifold pressure. Use a manometer to verify that the manifold pressure matches the information on the serial sticker and the type of gas being used. A separate gas regulator (locally obtained) must be installed if the incoming line pressure is greater than 14 inches water column pressure.

1. Connect the manometer to the pressure connection on the gas valve (disconnect gas service).
2. Restore gas service, and determine the pressure while the burner is ignited. The pressure must match the indicated manifold pressure on the serial sticker.

3.3.11 Gas Conversion

Notice: Do not connect a machine configured for Natural Gas to LP Gas service or vice-versa without a qualified service technician doing a proper conversion. After the reconfiguration is complete, the manifold pressure must be verified and the combustion air valve must be adjusted for proper operation.

3.4 Exhaust Requirements

For best results, install the ironer near an outside wall in order to keep the exhaust duct length as short as possible, and to provide a source of make-up air. Neither the rear nor the sides of the ironer should be blocked. Blocking the air inlets prevents proper combustion, and will yield poor results, and possibly harmful combustion byproducts. See recommended exhaust style in Figure 3.5 on page 18.

Important: Do not interrupt the flow of make-up air or the exhaust!

Use the shortest possible path with the fewest number of bends to connect to the outlet ductwork. Measured backpressure should not exceed 0.3 inches of water column pressure for reliable ignition and best results. *Don't guess, measure!*

Important: Under no circumstance should this ductwork be shared with other equipment.

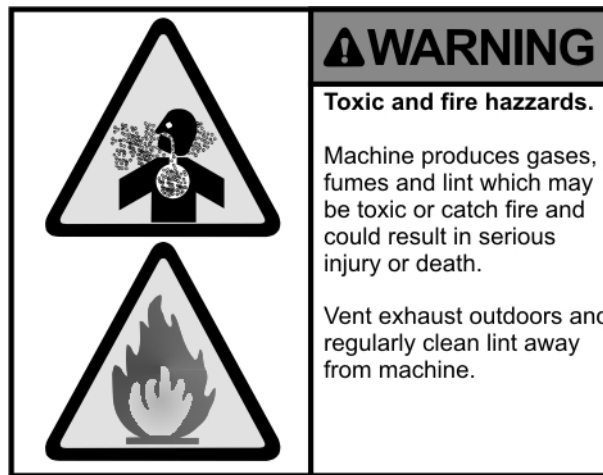


Figure 3.4: IS Series - Proper Exhaust is critical for safety!

Note: Check for proper exhaust fan rotation direction before placing the equipment into service. If the rotation is incorrect, remove power from the machine and exchange any two incoming power leads.

3.5 Steam Connections

For best results, operate with a steam pressure of 90-125 psi (6.2-8.6 bar). The steam inlet and return are located on the rear of the machine. The inlet is marked as such and is 3/4" NPT (IS-14120), 1" NPT (IS-18120 & IS-24120) or 1-1/4" NPT (IS-32120). The return is marked as such and is 1/2" NPT (IS-14120 & IS-18120), or 3/4" NPT (IS-24120), or 1" NPT (IS-32120).

Important: Insulate all steam and return lines for the safety of the operator and service technician.

Important: All steam components must be rated for a minimum of 200 psi (14 bar) working pressure. Shut off valves must be installed upstream of the steam inlet, and downstream of the steam trap so that the equipment can be isolated for maintenance or emergency.

Important: Support all steam lines and components to minimize the load on the steam connections to the ironer.

Obtain steam service piping from a steam system supplier or a qualified steam fitter.

Use a minimum of 12 inch (300mm) rise above the header to prevent condensate from draining into the ironer. Do not make a steam connection to the header with a horizontal/downward facing tee or elbow.

Wherever possible, horizontal runs of steam lines must gravity drain to the steam header. Water pockets or improperly drained headers will yield poor results due to wet steam.

Install a union and valve in the steam supply and return lines for ease of service.

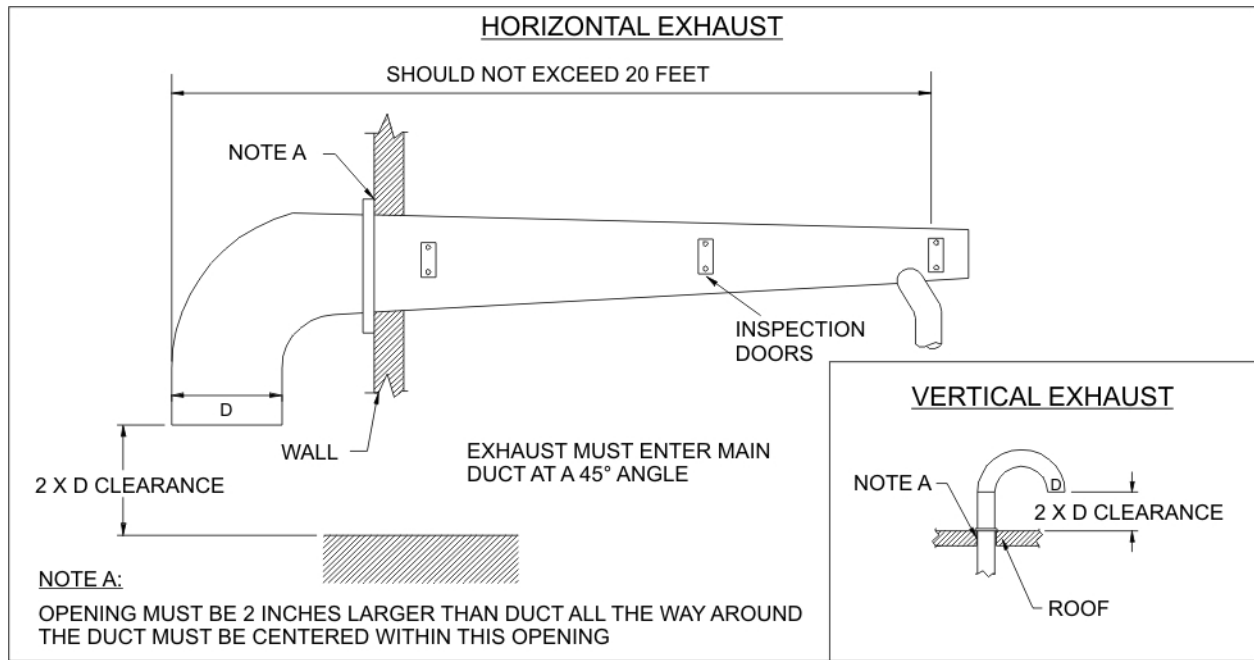


Figure 3.5: IS Series - Exhaust Detail

Install an inverted bucket trap with strainer and a check valve. For best results, install the trap at least 18 inches (450mm) below the inlet and as close to the machine as possible. Install the trap according to the instructions with the unit, noting the steam flow direction. If the steam is gravity returned to the boiler, install a vacuum breaker and check valve in the return line near the machine. Note that all return plumbing must be below the return inlet.

To prevent eventual water hammer, route all return lines below steam outlets.

Chapter 4

Operation

4.1 Initial Startup

Before operating the ironer, check the following:

1. Check that the machine is level and in a stable position on the floor. The machine should not rock or move in any way.
2. Ensure that all electrical, gas/steam, and exhaust connections are made and leak free.
3. Check that the ironer is correctly grounded according to the earlier listed specifications (see page 8).
4. Remove all packaging and protective shipping materials. Discard these items - do not store them near the ironer.
5. Inspect the thermostat sled assembly and make sure it is in full contact with the ironing cylinder, and is free of lint and debris.
6. Turn the heating control to the OFF position, and the speed control to minimum (fully counter-clockwise).
7. Apply power to the machine. Before doing this, double check that the supply voltage matches the information on the serial sticker of the ironer.
8. Press the green START button.
9. Double check that the exhaust fan is rotating in the direction indicated on the blower housing. Additional information can be found on page 17.
10. Make sure the feeding belts are acting to pull linen into the machine (belts traveling towards the heated cylinder)
11. Replace all panels. **DO NOT DEFEAT INTERLOCK SWITCHES!**

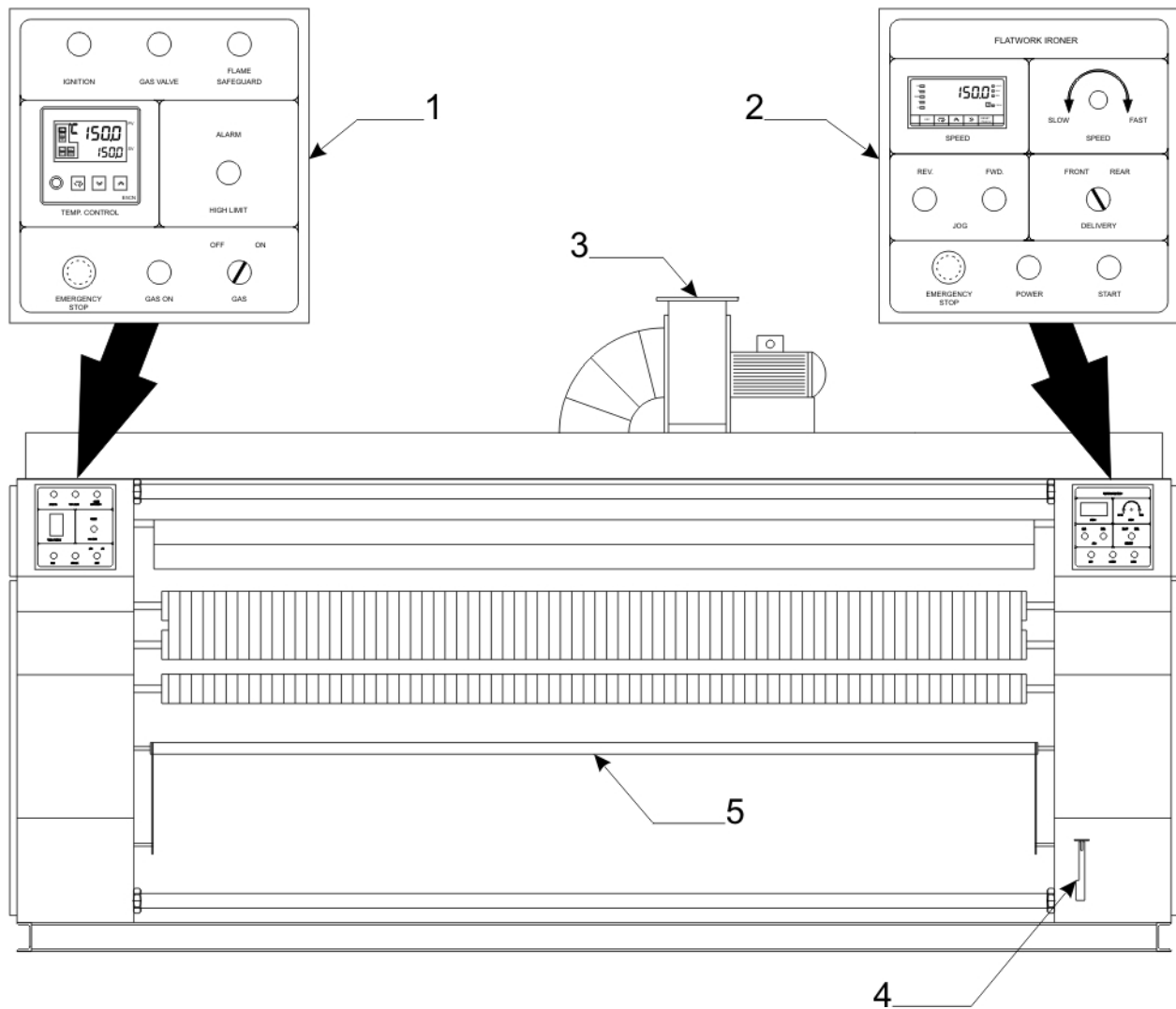


Figure 4.1: IS Series - Control Panels

12. For gas units, move the heat switch to the ON position. The heat light turns on. There will be a delay of 30 seconds prior to ignition.
13. Check that the temperature increases. When the temperature reaches the set point, the heat light should turn off.
14. Use old or worn linen to perform the initial ironing test.
15. Lay the linen on the feeding belts and allow it to be pulled into the ironer.
16. Adjust the speed control so that the goods come out of the ironer dry and finely pressed.

Refer to Figure 4.1 on page 20.

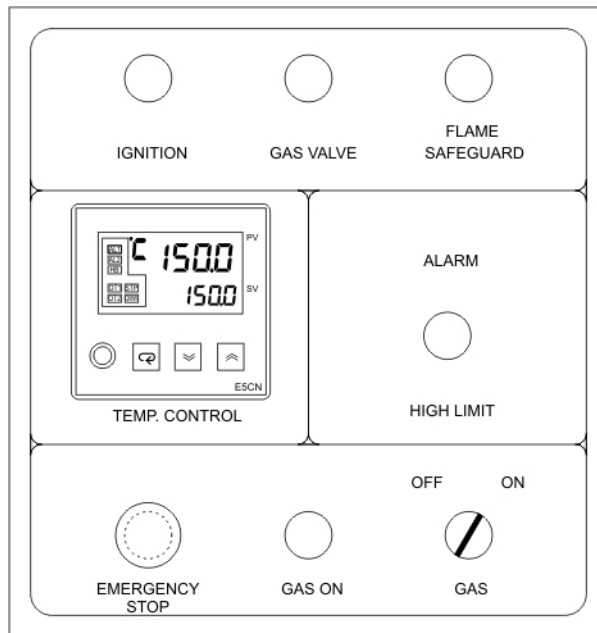


Figure 4.2: IS Series - Heat Control Panel

1. Heating Control Panel
2. Speed Control Panel
3. Exhaust
4. Compression roll release
5. Front Return table

4.1.1 Heat Control Panel

Control Panel Detail – refer to Figure 4.2 on page 21:

IGNITION – Indicates a call for heat

GAS VALVE – Indicates the gas valve is open, and machine is heating.

FLAME SAFEGUARD – Will briefly illuminate upon call for heat. Continuous illumination indicates ignition failure.

TEMPERATURE CONTROL – Sets operating point of machine. Press the up arrow to increase the operating temperature and the down arrow to decrease the operating temperature.

ALARM HIGH LIMIT – Safety thermostat has been activated. Check for proper operation of temperature control.

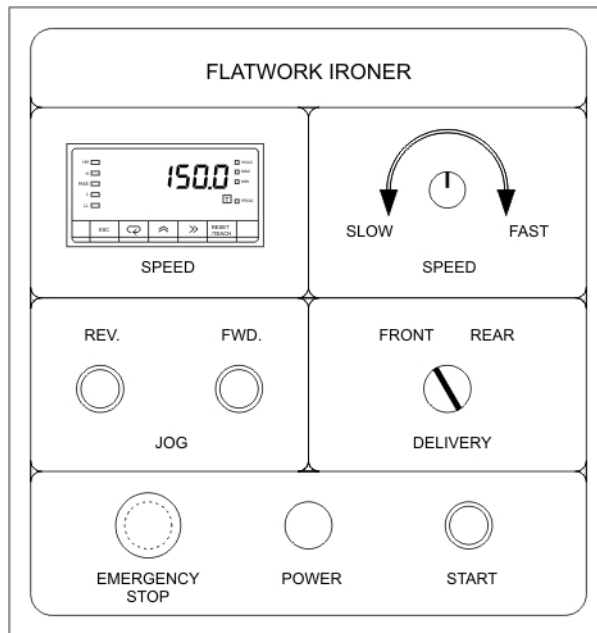


Figure 4.3: IS Series - Speed Control Panel

EMERGENCY STOP – Press to stop machine in case of an emergency. Pressing while machine is in operation and temperature is above 70°C (158°F) can cause damage to the machine.

GAS ON – illuminates when the Gas switch is in the on position.

4.1.2 Speed Control Panel

Refer to Figure 4.3 on page 22:

SPEED – indicates actual speed in feet/minute of the ironer, can also be set to display in meters/minute. Contact the factory for details.

SPEED KNOB – Rotate clockwise for increased speed, counter-clockwise for slower speeds.

JOG – press and hold to jog machine forwards or backwards to remove caught goods.

DELIVERY – set switch to Front to return the finished goods to the front of the machine; set to Rear for rear return.

EMERGENCY STOP – Press to stop machine in case of an emergency. Pressing while machine is in operation and temperature is above 70°C (158°F) can cause damage to the machine.

POWER – Indicates that the machine is ready to run

START – Press and hold for 1-2 seconds to start machine. Make sure the Emergency Stop buttons are released.

4.2 Operation

Notice: Do not perform maintenance on this machine while it is running, the cylinder is hot, or while the machine's circuit breaker is on.

Prior to starting the first shift of the day:

1. Inspect the area between the thermostat sled and the ironing cylinder. Gently lift the pick up sled away from the cylinder.
2. Clean any debris found away from the pick up sled and cylinder.
3. Ensure that the pick up sled remains in contact with the ironing cylinder.

To Operate Ironer:

1. Be familiar with the controls - see diagram on the previous page.
2. Turn the heat control to the OFF position (Gas models only), and rotate the speed control to the minimum (counter-clockwise) position.
3. Press the green start button for 1-2 seconds.
4. Ensure that the feed belts rotate towards the ironing cylinder.
5. Verify that the finger/hand guard safety panel immediately stops the ironer when pressed. If the ironer does not stop, discontinue use and follow all lock out/tag out procedures and call a qualified service technician.
6. Restart the ironer by pressing the green start button for 1-2 seconds.

IMPORTANT: For steam heated machines, open the steam supply valve **VERY SLOWLY** to avoid damage to the rotating steam joint.

Steps 7 & 8 are for gas heated models only

7. Turn the heat switch to the ON position. After 30 seconds, heating will begin. The temperature indicator on the temperature control should indicate increasing temperature. The set temperature is factory programmed to 150 °C (302 °F).
8. The heat indicator lamp will go out once the set temperature is reached.
9. Place linen on the feed table, allowing the feed belts to automatically pull the goods into the ironer.

NOTE: When ironing small goods such as pillow cases, work from left to right along the length of the ironer. This will provide optimum results - running small goods in lanes will result in cool spots on the cylinder and poor ironing performance, and could damage the feeding and return belts. See the Figures 4.4 and 4.5 in this section for details.

10. Turn the speed control clockwise to increase the speed, or counter-clockwise to decrease the speed. Slower speeds should be used if the goods are not exiting the ironer fully dry. Adjust the speed according to the weight and residual moisture of the goods. Obviously, thicker, wetter goods will require slower speeds than thinner, dryer goods.

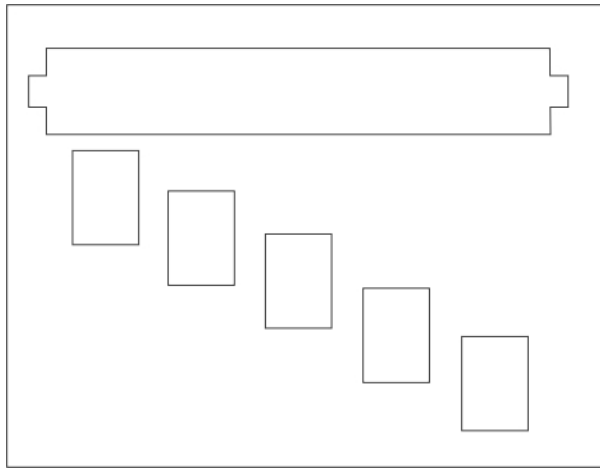


Figure 4.4: IS Series - Proper Feeding of Small Goods

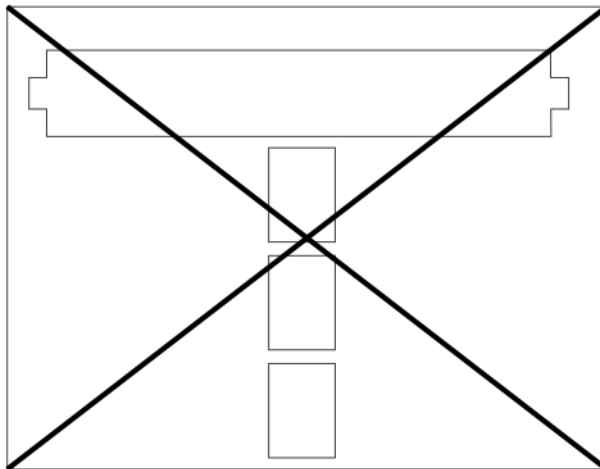


Figure 4.5: IS Series - Improper Feeding of Small Goods

11. Remove the finished goods from the output table, and fold or hang goods to prevent wrinkling.
12. To shut down the ironer at the end of the day, turn the heat switch to the OFF position, and allow the ironer to cool down to 70 °C (158 °F) before pressing the red stop button to power down the ironer.

For Best Finish Results:

- The pH of the goods to be ironed must be between 5.5 and 6.5.
- Do not use fabric softener! Fabric softener will be deposited onto the feeding belts and ironing cylinder causing poor performance and maintenance problems.

4.2.1 Calculating Moisture Retention

Percent Moisture Retention is a measure the water remaining in the goods being processed. To determine the water retention of flatgoods being processed do the following:

1. Pull a sample of 10 pieces from the middle of the pile (goods on top tend to be dryer and will give false results).
2. Immediately weigh your sample of 10 goods and record that weight as "W1". 3. Pass them through the ironer once and wait 5 minutes.
3. Weigh the sample again and record the weight as "W2".
4. Iron the sample goods a second time.
5. Weigh the sample a third time and record this as "W3".

From these weights one can find: 1) The dry weight of the laundry, 2) The moisture retention of the ironed goods, 3) The initial moisture retention of the goods before ironing.

To calculate moisture retention, use the following formulas:

$$\text{Moisture Retention (\% before ironing)} = (W1-W3) / W3$$

$$\text{Moisture Retention (\% after ironing)} = (W2-W3) / W3$$

As a general guide: The Moisture Retention before ironing should be 30% to 50%. The Moisture Retention 5 minutes after ironing should be 2% to 4%.

Fabric Weight is a major factor needed to determine the actual practical work rate for flat goods. Fabric weight is typically expressed as g/m² (grams per square meter), lbs/yd² (lbs per square yard), or oz/yd² (ounces per square yard). The fabric weight for the goods must be known to find the proper ironing speed in the Work Rate Chart. The weight of the flatwork can be determined easily by:

1. Measure the Length and Width of each of the 10 sample pieces used above. Multiply the measurements for each sheet to find the total area of each piece (Area = Length x width).
2. Add the calculated area for all 10 pieces.
3. If the sheets are measured in inches, divide the sum by 1296 to convert to square yards (yd²).
4. Divide the total dry weight (W3 from above) by the area in square yards from step 3 to calculate the weight.

$$\text{Fabric weight} = \text{Total Weight (lbs)} / \text{Total Area(yd}^2\text{)}$$

4.2.2 Waxing

Waxing is not required for models equipped with chrome plated ironing cylinder. If you choose to wax or lubricate the cylinder we recommend a synthetic high temperature ironer wax (for example "One Shot", "Gold Label", "Euroglide", etc.). Karagami organic wax can also be used but can leave a brown residue in the belts and on the cylinder over time. Apply the wax to a flat sheet, fold the sheet in half covering the wax, and feed the sheet through the ironer starting from one end and working to the other so that after multiple passes the entire cylinder has been waxed lightly. Doing this once bi-weekly or monthly is generally enough, however you must experimentally determine the frequency in order to obtain the best results with your goods in your process.

Chapter 5

Maintenance

5.1 Basic Troubleshooting

5.1.1 Control Problems

Temperature Control shows S.Err

Indicates an input error. Check the input wiring for bad connections and short-circuits.

Temperature Control shows E111

Indicates a memory error. Turn the machine power off, then back on. If the display continues to show the error, contact a qualified service technician.

Temperature Control shows cccc

Damaged sensor or wiring. Repair or replace.

Speed Display shows n1.Err, n2.Err, n3.Err, Err-o, or CHG-o

Indicates a memory error. Turn the machine power off, then back on. If the display continues to show the error, contact a qualified service technician.

5.1.2 Belt Problems

The ironing belts will shrink under 3 conditions:

1. if they are installed with the wrong side to the heated cylinder (Gold side should face cylinder)
2. if they are taken off the machine when they are hot
3. if they are overheated by not spreading out small piece work across the cylinder

To prevent hot spots make sure they are feeding sheets sideways so they cover the entire cylinder, feeding narrower single sheets lengthwise leaves a lot of unworked surface at the ends of the cylinder which will overheat and damage the belts. Feeding in lanes causes the same problem.

5.1.3 General Problems

Ironer will not start or stops suddenly

- Make sure the Emergency Stop button isn't pressed.
- Check the hand/finger guard.
- Check that all panels are in place and attached.

Ironer makes unusual noises

If the ironer makes unusual noises (rubbing, grinding, banging, etc.) properly shutdown the machine and contact a qualified service technician. Remember to follow all lock-out/tag-out procedures.

5.2 Periodic Maintenance

Daily

Inspect the temperature pick up sled and the cylinder. Remove debris if present.

Make sure the temperature pick up sled is in full contact with the ironing cylinder.

At shut down, wipe machine down with a mild cleaning agent and vacuum or sweep up any lint that has accumulated. Lint is highly flammable!

Weekly

Inspect safety labels and replace any that are damaged, worn, or illegible.

Inspect the guide ribbons (guide tape) for damaged or missing ribbons. Replace as necessary.

Remove lint from the combustion blower intake filter located on the left end under the cylinder.

Monthly

Grease all bearings using a high quality polyurea grease (Darmex 77 or equivalent).

Inspect feed belts for proper tension. There should be no slippage as the ironer runs. Do not over tighten the feed belts, as this will cause premature wear.

Inspect the return belts for proper tension. Return belts tend to elongate after initial startup and wear in.

Inspect and lubricate the drive chain and gears.



Figure 5.1: IS Series Drive Side Detail

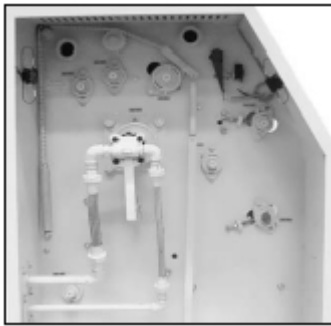


Figure 5.2: IS Series Steam Heat Detail



Figure 5.3: IS Series Gas Heat Detail

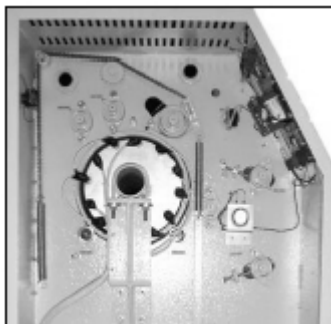


Figure 5.4: IS Series Electric Heat Detail



Figure 5.5: Typical Bearing Grease Point



Figure 5.6: Typical Cam Follower (Cylinder Support) Grease Point

Inspect the compression roll and ensure that the pressure is correct. The compression roll should only slightly touch the ironing cylinder and not exert too much pressure.

For steam models, inspect the rotary steam joint for leaks. If a leak is noted, a repair kit is available. Refer to the parts manual for details.

Caution: DO NOT touch or get too close to the steam piping. EXTREMELY HOT!

Clean the exhaust system, including blower and ductwork.

Clean the AC drive cooling fan and heat sink, located on the underside of the drive.

Clean the ironing cylinder, removing any residue.

Clean the steam trap filter (obviously, steam models only.). See Figure 5.7 for typical trap.

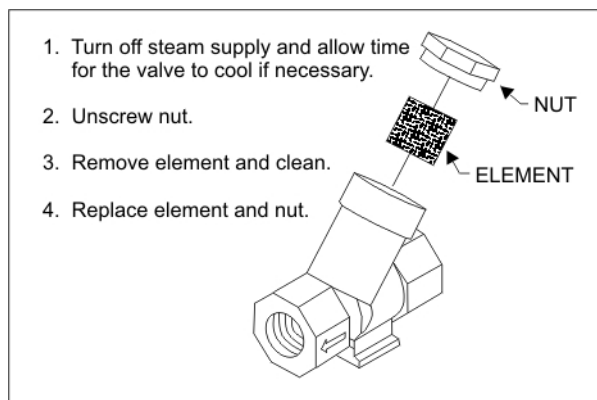


Figure 5.7: IS Series - Steam Trap Illustration

Chapter 6

Appendix

6.1 Burner Startup Procedure

Tools needed:

- Slack Tube Manometer
- 1/8" pipe hose barb (for your manometer)
- 1/4" pipe hose barb (for your manometer)
- Volt Meter

Controls: Refer to Figure 6.1 on page 32.

1. Gas Valve Pilot Coil
2. Gas Valve Main Coil
3. Pilot Gas Adjustment
4. Pilot Air Adjustment
5. Pilot Regulator
6. Main Air adjustment
7. Secondary Air Adjustment
8. Main Gas Cut-Off Valve
9. Shading Disk or Valve
10. Main Gas Pressure Test Port
11. Burner Pressure Switch

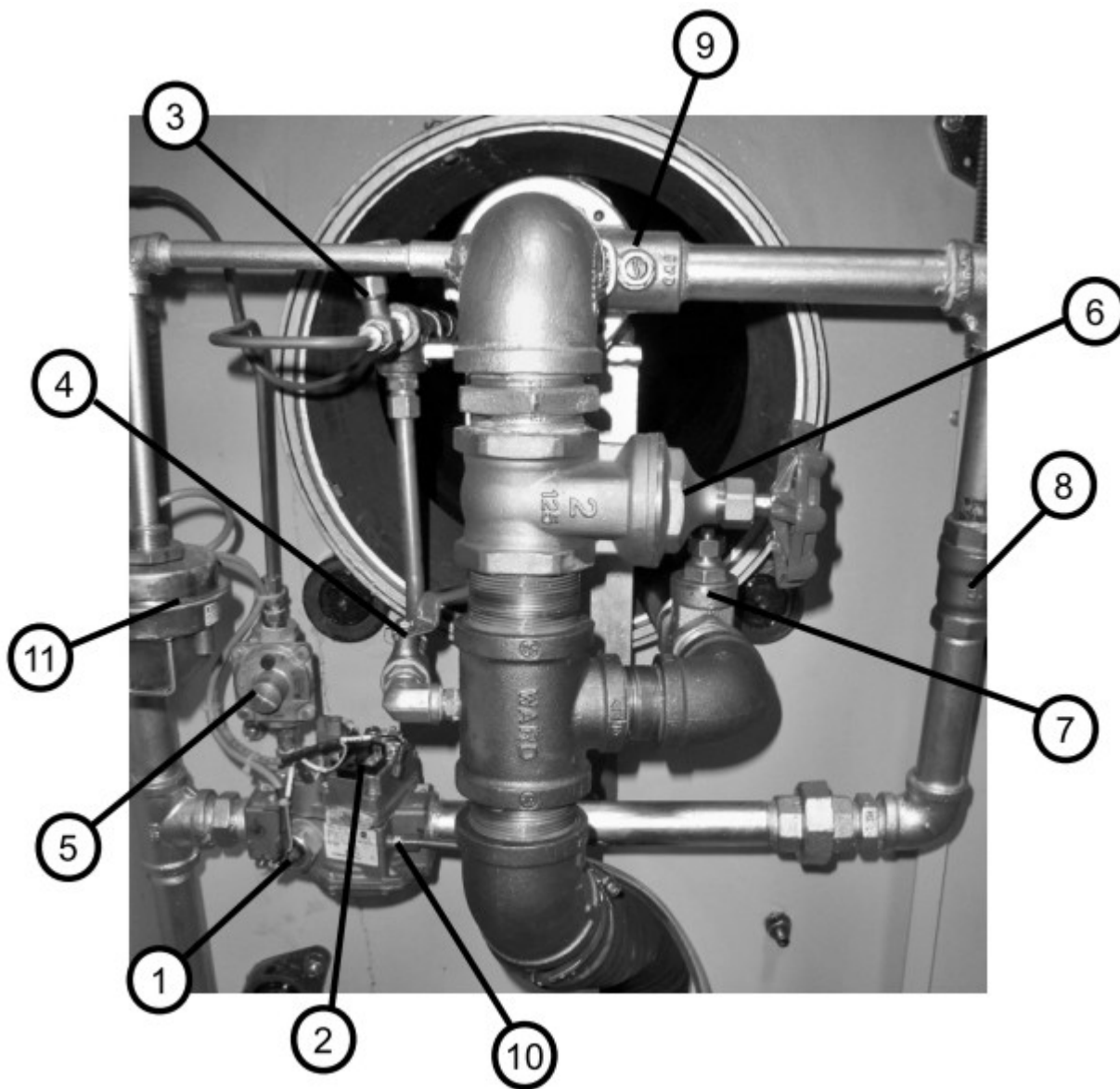


Figure 6.1: IS Series - Burner Controls

6.1.1 Setting the Pilot

1. Disconnect one of the wires from the main coil (2) of the gas valve to prevent the main burner from lighting.
2. Close main gas cut-off (8).
3. Close the pilot air valve (4) and open 1/8 of a turn as a starting point.
4. Power up the machine and turn on the heat switch. After a delay period the pilot ignition should begin. The ignition period is 7 seconds.
5. After pilot ignition slowly open the pilot air valve (4) until the flame changes from purple to blue with a light blue center cone. At this point you should have maximum flame sense current and a flame that re-lights quickly and is hard to blow out.
6. On newer models, pilot gas is controlled by a non-adjustable metering orifice. If your machine has a pilot gas adjustment valve, do the following: Note the length of the flame, it should be 3 to 4 inches in length. If it is shorter open up the pilot gas valve (3) 1/8 of a turn and repeat step 5. If it is longer, close the pilot gas valve (3) 1/8 of a turn or less and repeat step 5. **The pilot gas valve (3) should not be adjusted unless absolutely necessary – try the air adjustment thoroughly before making any gas delivery adjustment.**
7. When the flame is properly adjusted you will have a clean stable pilot that is difficult to blow out and has maximum flame sense current (at least 20uA, 25uA typical). When measured with the CHANNEL PRODUCTS FT-003 flame sense probe the pilot should read 40-45mV DC when set properly.
8. If you cannot achieve a stable clean pilot flame call B&C Technologies for assistance.
9. DO NOT proceed to main burner testing and setup until this section has been completed properly.

6.1.2 Setting the Main Burner

1. Before starting make sure have a completed the pilot setup procedure and have a stable pilot burn with good flame current. Make sure the the following settings are made:
 - Set shading disk or valve (9) open slightly from closed position (5deg. for shading disk, 1/4 turn for shading valve).
 - Main gas cut-off valve (8) open.
 - Manometer connected to the gas valve test port (10).
 - Main air valve (6)
 - IS-32120 – closed 3 turns from full open
 - IS-24120 – closed 2 turns from full open
 - IS-18120 – closed 0 turns from full open

- Main gas valve coil (2) connected.
 - Set secondary air valve (7) open 1/2 turns from closed position.
2. Start burner. After pilot ignition watch manometer reading. When main valve opens adjust main gas valve regulator to 2.0" WC (for natural or LP gas).
 3. Very slowly open shading disk or valve (9) until first burner tip lights then stop adjusting – the slower the better. This is the shading disk or valve position that should be locked in – do not adjust it any more.
 4. Make any fine adjustments to get a stable *hard flame* burn with the main gas regulator located next to the main gas valve coil (2).
 5. The burn normally drifts rich a few seconds after ignition (oxygen is burned out of the atmosphere in the combustion chamber). To compensate open the secondary air valve (7) slightly and relight the burner. Repeat until a stable clean burn is achieved. NOTE: opening the secondary air valve (7) too far can result in a flame that will not propagate down the entire length of the burner – make small adjustments.
 6. Let the ironer cool completely to room temperature (overnight is best) and retry ignition. Combustion performance may change drastically from hot to cold if settings are not correct.
 7. With the burner operating, use a 3/16" blade flat screwdriver to slowly screw in the adjustment screw in the burner pressure switch (11) until the burner shuts off. Then back the screw up 1.5 turns.
 8. The burner should now relight quickly, the flame should propagate from the pilot to the far end of the burner quickly and reliably.

6.1.3 Normal Operation

In normal operation the burner should perform as follows:

1. Power up ironer.
2. Increase the temperature setpoint to some number higher
3. Turn on call for heat switch.
4. Combustion blower and purge timer start
5. After purge time (30 sec) ignition of pilot should begin.
6. Flame fault light turns on for 2 sec as verification of normal power-up.
7. Gas valve pilot coil (1) is turned on and ignition starts for a 7 second trial period. The main burner delay timer is initialized (powered up) at this point.
8. Pilot should light within 3 to 5 seconds.

9. If proper pilot flame profile is present and flame sense current is in range, the pilot gas valve will stay open.
10. After the main burner delay time (30 sec) is complete the main burner will light.
11. The pilot will stay lit and the combustion blower will stay on as long as the call for heat switch is on.
12. Hereafter, because the pilot stays on, the main burner will turn on and off immediately when the heat relay in the temperature control closes.