HOBART

SERVICE

TBC13 Blast Chiller, Reach-In
Self-Contained (Shown)

Traulsen
TBC Series Blast Chillers

Customer Maintenance Manual

SPECIFICATION SHEET

OWNERS MANUAL

INSTALLATION INSTRUCTIONS

MAINTENANCE INSTRUCTIONS

OPERATING INSTRUCTIONS

TRAINING GUIDE

CLEANING INSTRUCTIONS

SERVICE MANUAL

WIRING DIAGRAMS

TROUBLESHOOTING INSTRUCTIONS

REPLACEMENT PARTS

HOBART SERVICE PARTS STORE

F48081

Project _____

AIA #_____ SIS #_____

Item #_____ Quantity _____ C.S.I. Section 114000

COMMERCIAL REFRIGERATION

BLAST CHILLERS

TBC-SERIES

Blast Chiller, Undercounter Self-Contained

Intertek 4004142

NSF CERTIFIED TO ANSI/NSF 7

3-YEAR PARTS & LABOR WARRANTY

This unit is listed to the applicable UL, CSA and NSF Standards by an approved NRTL. Consult the factory or unit's data plate for approval information.

STANDARD PRODUCT FEATURES

- High Performance Refrigeration System
- Easy to Use Touch Screen Control with Automatic or Manual Operation
- Adjustable Product Target Temps (40 to -5 degrees F) or Cycle Times
- Four Chill Settings: Blast Chill, Speed, Energy Saving & Delicate
- On-Board Cycle Data Printer
- Three (3) Removable Food Probes
- USB Port, 90-Day Cycle Data Memory
- Stainless Steel Exterior & Interior
- Heavy Gauge Stainless Steel Work Top
- Long Life EZ Clean Door Gaskets
- Five (5) Universal Type Tray Slides (factory installed)
- Easy to Maintain Front Facing Condenser Coil
- 3-Year Parts & Labor Warranty
- 2-Years Additional Compressor Parts Warranty

ACCESSORIES & OPTIONS (*field installed)

- Label Printer (adds "-LP" to device number)
- Set of Four (4) 4-5/8" High Casters

AVAILABLE CONFIGURATIONS

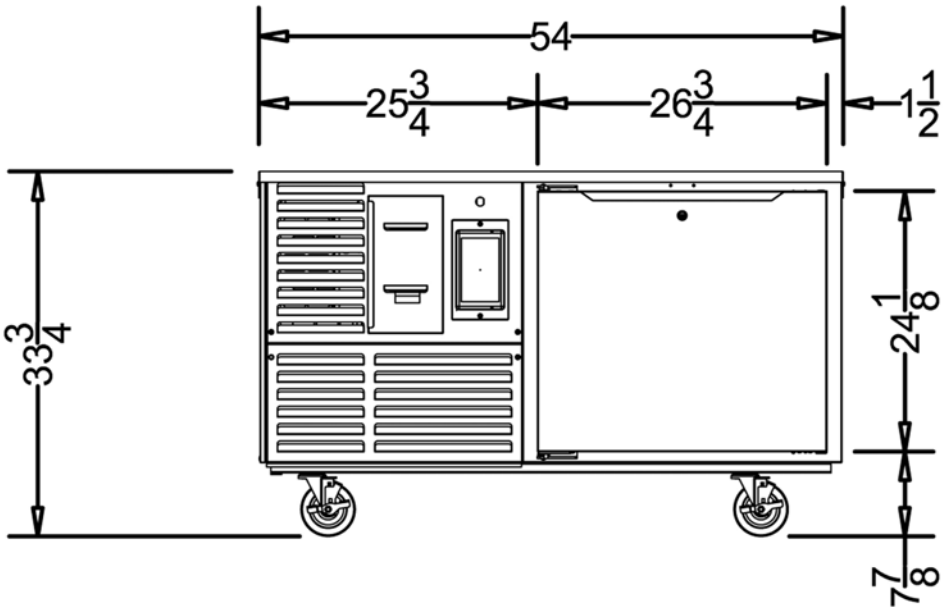
Device#	Hinging	Supports	Stainless Steel Back
TBC5-50	Right	6" Casters	No
TBC5-51	Left	6" Legs	No
TBC5-52	Right	6" Legs	No
TBC5-54	Right	6" Casters	Yes
TBC5-58	Left	6" Casters	Yes
TBC5-62	Left	6" Casters	No

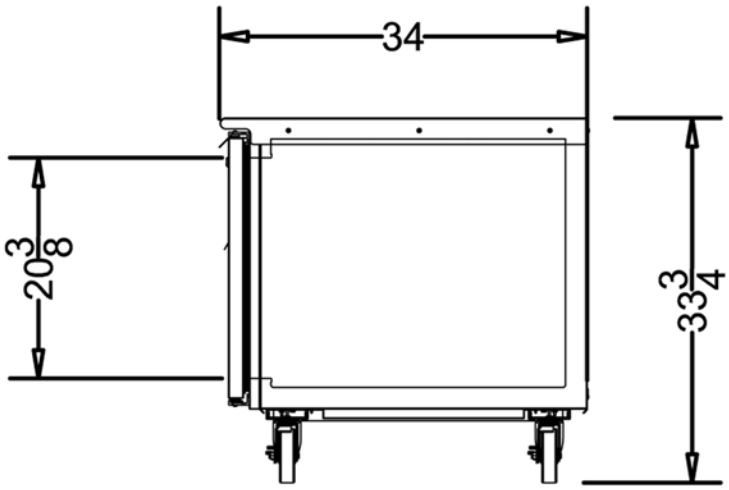
SECTION 6-1

Approved by_____ Date_____ Approved by_____ Date_____

MODEL

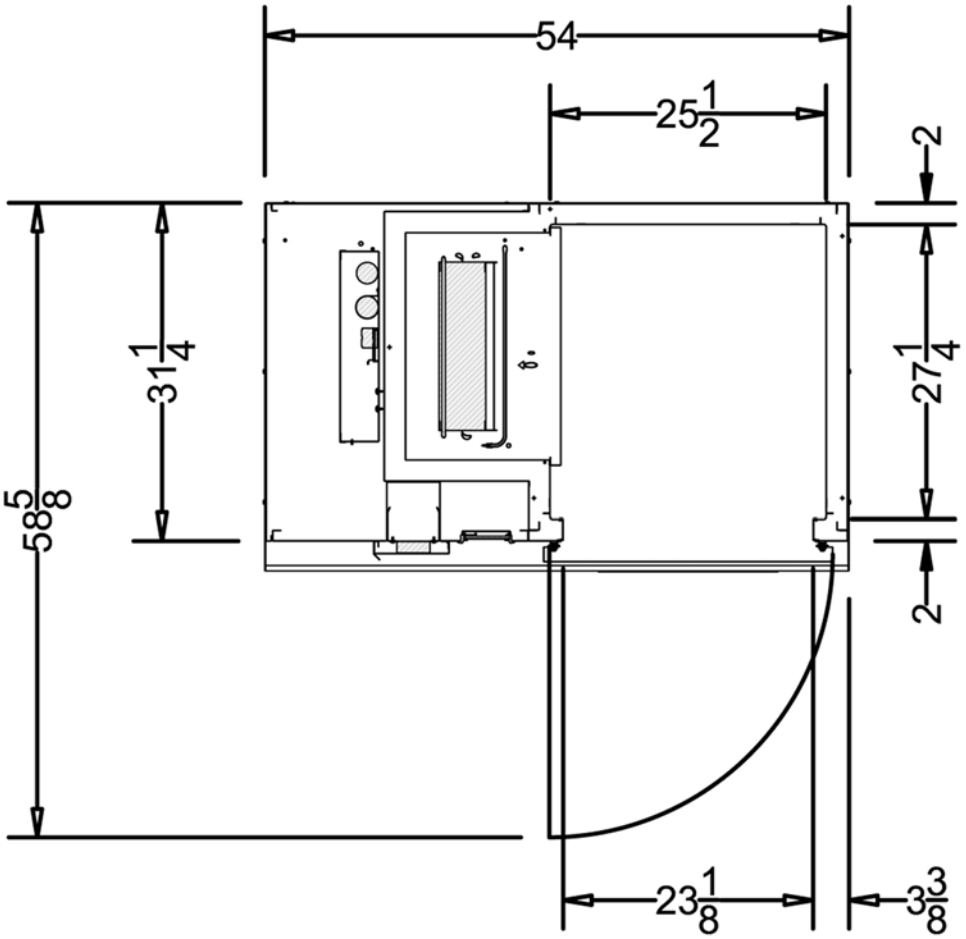
TBC5





MODEL

TBC5



TBC-SERIES
Blast Chiller, Undercounter
Self-Contained

MODEL
TBC5

MODELS	TBC5
DIMENSIONAL DATA	
Net Capacity cu. ft.	9.2 (267 l)
L x D x H - Overall in.[1]	54 (137.2 cm) x 34⅞ (88.8 cm) x 33¾ (85.7 cm)
Depth - over body in.	34 (86.4 cm)
Depth - door open 90⁰ in.	58⅝ (148.9 cm)
Clear door W x H in.	23⅛ (58.7 cm) x 20⅜ (69.9 cm)
No. Tray Slides	5
Pan Capacity	(5) 18" x 26" | (10) 12" x 20"
Product Capacity lbs.	100
ELECTRICAL DATA	
Voltage | Plug	115/60/1 | NEMA 5-20P (attached)
Feed wires with ground	3
Full Load Amps | Req'd Circuit	16.0 | 20 Amp
REFRIGERATION DATA	
Refrigerant	R-404A
BTU/HR | H.P.[2]	4300 | 1 HP
Required Clearance	n/a
SHIPPING DATA	
L x D x H Crated in.	66(167.6 cm) x 42 (106.6 cm) x 40 (101.6 cm)
Volume Crated cu. ft.	65 (1840.6 l)
Uncrated | Crated Weight lbs.	713 (323.4 kg) | 653 (296.1 kg)

NOTES:
1. Height shown when mounted on standard 6" high legs or casters.
2. Based on a 90⁰F ambient and 20⁰F evaporator.

ESTIMATED PERFORMANCE CHART

TBC5 Product Load	Chill Time From 135⁰F to 40⁰F
50 (lbs.)	85
75 (lbs.)	140
100 (lbs.)	180

EQUIPMENT SPECIFICATIONS

CONSTRUCTION, HARDWARE, INSULATION
Cabinet exterior and interior are constructed of stainless steel. The exterior cabinet back and bottom are constructed of heavy gauge galvanized steel. A heavy gauge stainless steel bull-nose work top is provided standard. Door is equipped with a cylinder lock and guaranteed for life self-closing cam-lift hinges with a stay open feature at 120 degrees. Gasket profile and durable long life material simplify cleaning and increase overall gasket life. Anti condensate heaters are located behind the door opening. Both the cabinet and door are insulated with an average of 2" thick high density, non-CFC, 100% foamed in place polyurethane.

SELF-CONTAINED REFRIGERATION SYSTEM
A high-capacity, self-contained refrigeration system using R-404A refrigerant is coupled with an advanced air circulation system to rapidly chill hot food through the HACCP danger zone. It features a thermostatic expansion valve, high-humidity evaporator coil, high speed evaporator fan, air-cooled hermetic compressor, hot gas de-frost and a non-electric condensate evaporator. The condenser coil is front facing for easy cleaning. Defrost occurs automatically, does not interrupt chill cycles in progress, nor starting new chill cycles, and intervals between defrost cycles are adjustable to better suit differing operational needs. A 9' cord and plug is provided.

CONTROL / BASIC OPERATION
The easy to use touch screen control is water resistant and protected from damage by a heavy gauge stainless steel bezel. Using the three probes provided, it monitors cycle progress and records all HACCP required data. This information can then be printed at the end of the cycle using the on-board printer and/or retrieved later from memory, where it is stored for 90-days.

Chill cycles can be started in one of two ways using either the AUTO (touch free) or MANUAL (fully adjustable) operating mode. In AUTO mode, placing any probe in 90°F or above product will initiate a chill cycle using the default parameters (standard blast chill with a target temperature of 37°F) in approximately 30-seconds. In MANUAL mode, the operator can adjust all the cycle parameters to suit their needs. Upon pressing START the chill cycle will commence using these inputs. Failure to complete cycle programming in MANUAL mode will result in the chill cycle starting automatically in 5-minutes after the last button push (provided at least one probe had been placed in product 90°F or above).

Product and/or user names can be manually input at the beginning or end of the chill cycle if desired. Customized chill cycle parameters (i.e. chill recipes) can loaded and stored in advance, by name.

Once a chill cycle is started, it will continue without interruption until either the target temperature (using probes) or time (without using probes) is met. When using the default target temperature of 37°F, rapidly circulating air will cycle between 10-14°F or as low as -25°F when the target temperature is set at -5°.

Upon cycle completion, the blast chiller will notify the operator with an audible alarm, and automatically revert to maintenance mode, holding the product at the target temperature until removed.

INTERIOR ARRANGEMENTS
Standard interior arrangements include five (5) adjustable universal type tray slides, installed at the factory.

DOMESTIC WARRANTY
Both a three year parts and labor warranty and an additional two year compressor parts warranty (for a total of five) are provided standard.

CONTINUED PRODUCT DEVELOPMENT MAY NECESSITATE SPECIFICATION CHANGES WITHOUT NOTICE.

Project _____

AIA #_____ SIS #_____

Item #_____ Quantity _____ C.S.I. Section 114000

COMMERCIAL REFRIGERATION

BLAST CHILLERS

TBC-SERIES

Blast Chiller, Reach-In Self-Contained

STANDARD PRODUCT FEATURES

- High Performance Dual Refrigeration System
- Easy to Use Touch Screen Control with Automatic or Manual Operation
- Adjustable Product Target Temps (40 to -5 degrees F) or Cycle Times
- Four Chill Settings: Blast Chill, Speed, Energy Saving & Delicate
- On-Board Cycle Data Printer
- Three (3) Removable Food Probes
- USB Port, 90-Day Cycle Data Memory
- Stainless Steel Exterior & Interior
- Long Life EZ Clean Door Gaskets
- Thirteen (13) Universal Type Tray Slides (factory installed)
- Easy to Maintain Front Facing Condenser Coil
- 3-Year Parts & Labor Warranty
- 2-Years Additional Compressor Parts Warranty

3-YEAR PARTS & LABOR WARRANTY

Intertek 4004142

CERTIFIED TO ANSI/NSF 7

This unit is listed to the applicable UL, CSA and NSF Standards by an approved NRTL. Consult the factory or unit's data plate for approval information.

ACCESSORIES & OPTIONS (*field installed)

- Label Printer (adds "-LP" to device number)
- Automatic Electric Condensate Evaporator (field installed)
- Combi Oven Compatibility Kit
- Set of Four (4) 4-5/8" High Casters

AVAILABLE CONFIGURATIONS

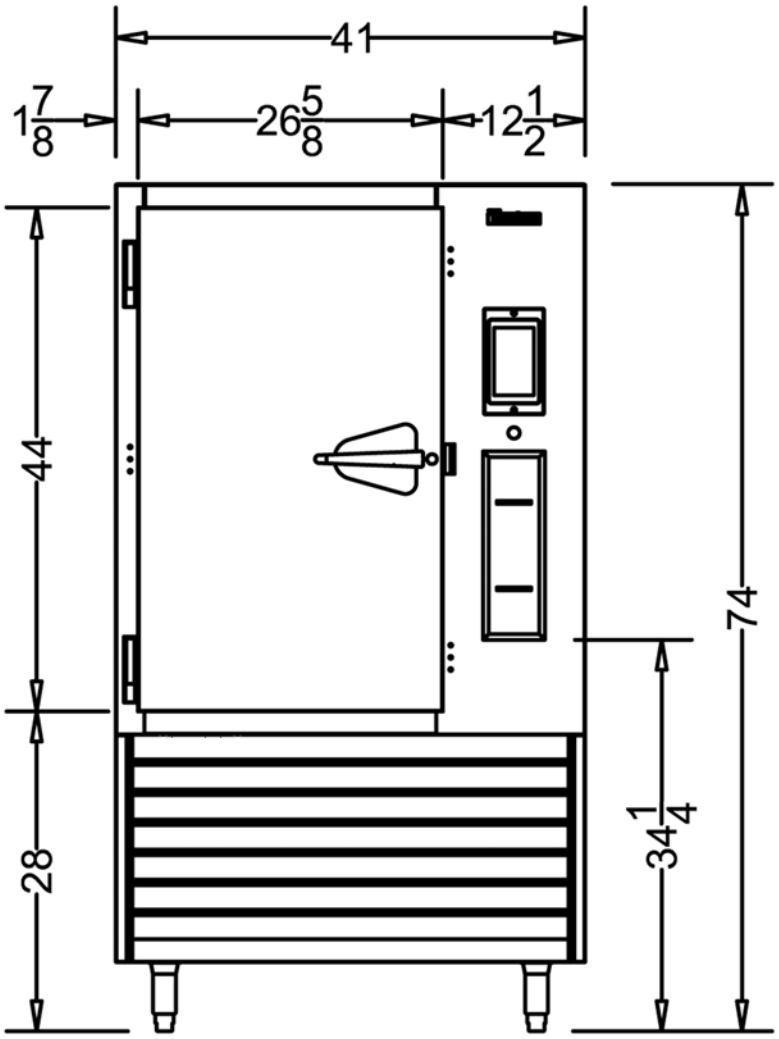
Device#	Hinging	Supports	Other Feature
TBC13-24	Left	6" Casters	No
TBC13-28	Right	6" Casters	No
TBC13-31	Left	6" Legs	No
TBC13-32	Right	6" Legs	No
TBC13-58	Left	6" Casters	No
TBC13-62	Left	6" Casters	No
TBC13-36	Left	6" Legs	Remote
TBC13-38	Right	6" Legs	Remote
TBC13-50	Right	6" Casters	Combi Oven Compatible

SECTION 6-2

Approved by_____ Date_____ Approved by_____ Date_____

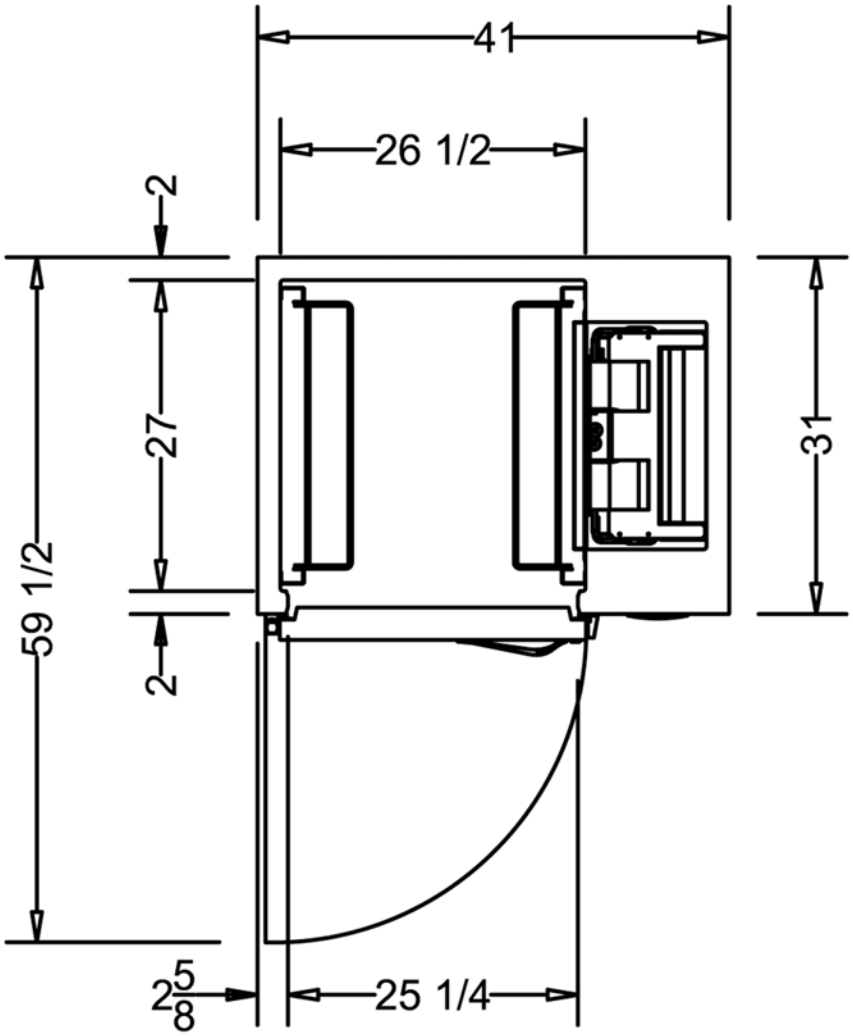
MODEL

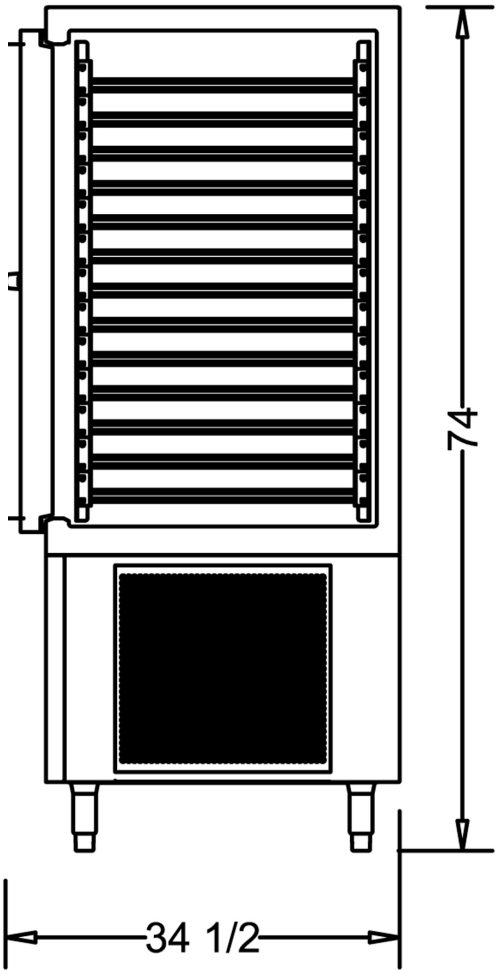
TBC13



MODEL

TBC13





TBC-SERIES
Blast Chiller, Reach-In
Self-Contained

MODEL
TBC13

MODELS	TBC13
DIMENSIONAL DATA	
Net Capacity cu. ft.	18.3 (518 l)
L x D x H - Overall in.[1]	41 (104.1 cm) x 35 (88.8 cm) x 74 (188 cm)
Depth - over body in.	31 (78.7 cm)
Depth - door open 90⁰ in.	59⅛ (151.1 cm)
Clear door W x H in.	25⅛ (64.1 cm) x 41⅝ (105.7 cm)
No. Tray Slides	13
Pan Capacity	(13) 18" x 26" | (26) 12" x 20"
Product Capacity lbs.	200
ELECTRICAL DATA	
Voltage | Plug	208-230/115/60/1 | NEMA L14-20P (attached)
Feed wires with ground	4
Full Load Amps | Req'd Circuit	16.0 | 20 Amp
REFRIGERATION DATA	
Refrigerant	R-404A
BTU/HR | H.P.[2]	Maintenance 2820 ½ HP | Blast Chill 5710 ½ HP
Required Side Clearances [3]	3" | 5½"
SHIPPING DATA	
L x D x H Crated in.	48 (121.9 cm) x 45 (114.3 cm) x 85 (215.9 cm)
Volume Crated cu. ft.	106 (3001.5 l)
Uncrated | Crated Weight lbs.	740 (335.6 kg) | 680 (308.4 kg)

NOTES:
1. Height shown when mounted on standard 6" high legs or casters.
2. Based on a 90⁰F ambient and 0⁰F evaporator.
3. Clearance figures based on an 86⁰F and 105⁰F enviroment respectively.

ESTIMATED PERFORMANCE CHART

TBC13 Product Load	Chill Time From 135⁰F to 40⁰F
75 (lbs.)	85
100 (lbs.)	90
125 (lbs.)	100
150 (lbs.)	120
200 (lbs.)	140

EQUIPMENT SPECIFICATIONS

CONSTRUCTION, HARDWARE, INSULATION
Cabinet exterior and interior are constructed of stainless steel. The exterior cabinet top, back and bottom are constructed of heavy gauge galvanized steel. Door is equipped with a cylinder lock and guaranteed for life self-closing cam-lift hinges with a stay open feature at 120 degrees. Gasket profile and durable long life material simplify cleaning and increase overall gasket life. Anti condensate heaters are located behind the door opening. Both the cabinet and door are insulated with an average of 2" thick high density, non-CFC, 100% foamed in place polyurethane.

SELF-CONTAINED REFRIGERATION SYSTEM
High-capacity, self-contained dual refrigeration systems using R-404A refrigerant is coupled with an advanced air circulation system to rapidly chill hot food through the HACCP danger zone. It features a thermostatic expansion valve, high-humidity evaporator coil, high speed evaporator fans, air-cooled hermetic compressor, and hot gas defrost. A floor drain or optional condensate evaporator is required for condensate removal. The condenser coil is front facing for easy cleaning. Defrost occurs automatically, does not interrupt chill cycles in progress, nor starting new chill cycles, and intervals between defrost cycles are adjustable to better suit differing operational needs. A 9' cord and plug is provided.

CONTROL / BASIC OPERATION
The easy to use touch screen control is water resistant and protected from damage by a heavy gauge stainless steel bezel. Using the three probes provided, it monitors cycle progress and records all HACCP required data. This information can then be printed at the end of the cycle using the on-board printer and/or retrieved later from memory, where it is stored for 90-days.

Chill cycles can be started in one of two ways using either the AUTO (touch free) or MANUAL (fully adjustable) operating mode. In AUTO mode, placing any probe in 90°F or above product will initiate a chill cycle using the default parameters (standard blast chill with a target temperature of 37°F) in approximately 30-seconds. In MANUAL mode, the operator can adjust all the cycle parameters to suit their needs. Upon pressing START the chill cycle will commence using these inputs. Failure to complete cycle programming in MANUAL mode will result in the chill cycle starting automatically in 5-minutes after the last button push (provided at least one probe had been placed in product 90°F or above).

Product and/or user names can be manually input at the beginning or end of the chill cycle if desired. Customized chill cycle parameters (i.e. chill recipes) can loaded and stored in advance, by name.

Once a chill cycle is started, it will continue without interruption until either the target temperature (using probes) or time (without using probes) is met. When using the default target temperature of 37°F, rapidly circulating air will cycle between 10-14°F or as low as -25°F when the target temperature is set at -5°.

Upon cycle completion, the blast chiller will notify the operator with an audible alarm, and automatically revert to maintenance mode, holding the product at the target temperature until removed.

INTERIOR ARRANGEMENTS
Standard interior arrangements include thirteen (13) adjustable universal type tray slides, installed at the factory.

DOMESTIC WARRANTY
Both a three year parts and labor warranty and an additional two year compressor parts warranty (for a total of five) are provided standard.

CONTINUED PRODUCT DEVELOPMENT MAY NECESSITATE SPECIFICATION CHANGES WITHOUT NOTICE.

Project	Quantity	Item #
Model Specified:		CSI Section 11400

Blast Chiller Models

Roll-In Model TBC1H

TBC SERIES

26 Pan Roll-In Model	**TBC1H**
26 Pan Roll-Thru Model	**TBC1HR**
52 Pan Roll-In Model	**TBC2H**
52 Pan Roll-Thru Model	**TBC2HR**

The TBC Series blast chillers offer outstanding chill performance combined with durable, easy-to-use touch screen controls to provide the ultimate blast chiller platform. Our exclusive **Epicon™** control offers three ways to start chilling. A **"Probe Chill™"** operation mode requires no buttons to be pushed, as well as an **"Auto Menu"** mode that allows for simple menu item recall. Operation is regulated by the food probes, insuring proper cycle performance every time. Also included is a full **"Manual Menu"** mode for more advanced operators.

All modes offer chill setting adjustments, such as **"Standard", "Speed," "Delicate"** and **"Energy"** savings.

Additionally, complete HACCP documentation is provided at the end of every cycle through use of an on-board printer and a USB port.

Exclusive Chilling Features

- **3 Modes**
  - 1) Probe Chill™ Operation
    - Insert Probe And Go
  - 2) Auto Menu
    - Simple Menu Item Recall
  - 3) Manual Menu
    - Ability To Customize
- **4 Chilling Settings**
  - 1) Standard
    - For Basic Operation
  - 2) Speed
    - For High Volume Operation Reduce Chill Time By 10%
  - 3) Delicate
    - Retain Moisture And Food Quality During Chill Cycle
  - 4) Energy
    - Conserve 10% Energy Consumption Per Cycle
- **3 Program Options**
  - 1) Target Temperature
  - 2) Target Time
  - 3) Product Recall

High Quality Standard Features

- One (1) On-Board Batch Data Printer
- USB Port For Loading HACCP Data & Product Updates
- Communications Capable & NAFEM Data Protocol Compliant
- Stainless Steel Exterior & Interior Construction
- Automatic Refrigerated/Freezer Hold Mode After Each Cycle
- Two-Stage Self-Contained Refrigeration System (promotes energy efficient operation and maximizes compressor life)
- Accommodates One Roll-In Rack With Maximum Dimensions Of: H=72" x W=27" x D=29" (not supplied standard)
- Hot Gas Defrost
- Magnetic Door Gasket
- Standard Door Hinging: Left
- Stainless Steel Breaker Caps
- Stainless Steel Roll-In Ramp(s) & Rack Guides
- Self-Closing and Stay-Open Door Features
- Guaranteed-For-Life Cam-Lift Hinges
- Guaranteed-For-Life Horizontal Work Flow Door Handle
- Three Year Parts/Labor & Five Year Compressor Warranty

Options & Accessories

- On-Board Label Printer (adhesive labels for product containers)
- Correctional Facility Package for Blast Chill
- One or Two Day On-Site Blast Chill Training
- Water Cooled Self-Contained Condenser Suitable For Connection To Glycol (consult factory)
- BCACC-60018: 115V Floor-Mounted Condensate Evaporator
- BCACC-OTRTR: Special Roll-In Rack Holds Up To (26)12" x 20 " pans
- BCACC-60111-10: 208-230/60/1 4HP Air-Cooled Remote Condensing Unit
- BCACC-60123-10: 208-230/60/3 4HP Air-Cooled Remote Condensing Unit
- BCACC-60146-10: 460/60/3 4HP Air-Cooled Remote Condensing Unit
- BCACC-60228-10: 208-230/60/1 5HP Water-Cooled Remote Condensing Unit
- BCACC-60229: 208-230/60/3 5HP Water-Cooled Remote Condensing Unit
- BCACC-60122-10: Weather Housing Remote Condensing Unit (TBC1H)
- Combi Oven Compatibility Collar
- Other Voltage (consult factory)

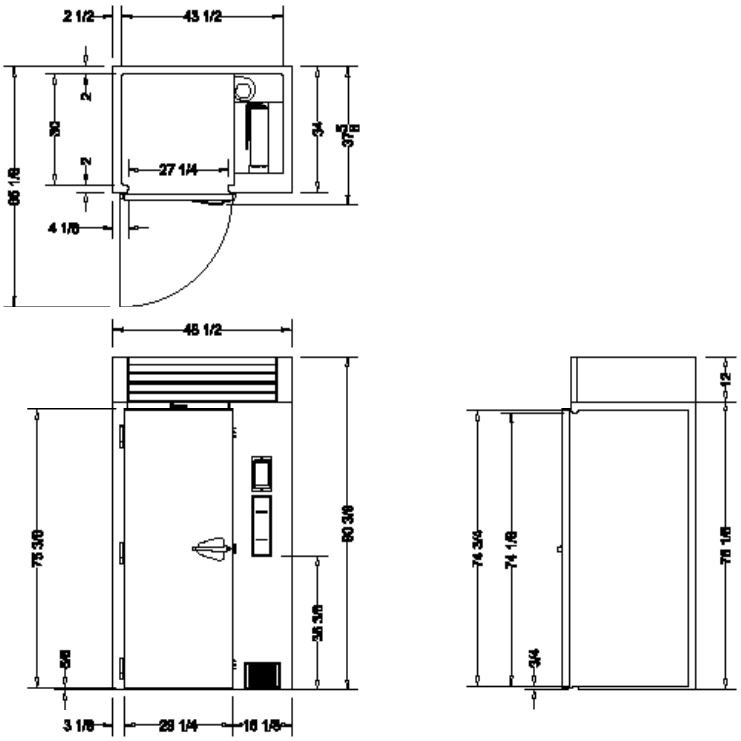
c UL us LISTED NSF

Listed by Underwriters Laboratories Inc., to U.S. and Canadian safety standards and NSF International in accordance with ANSI/NSF7.

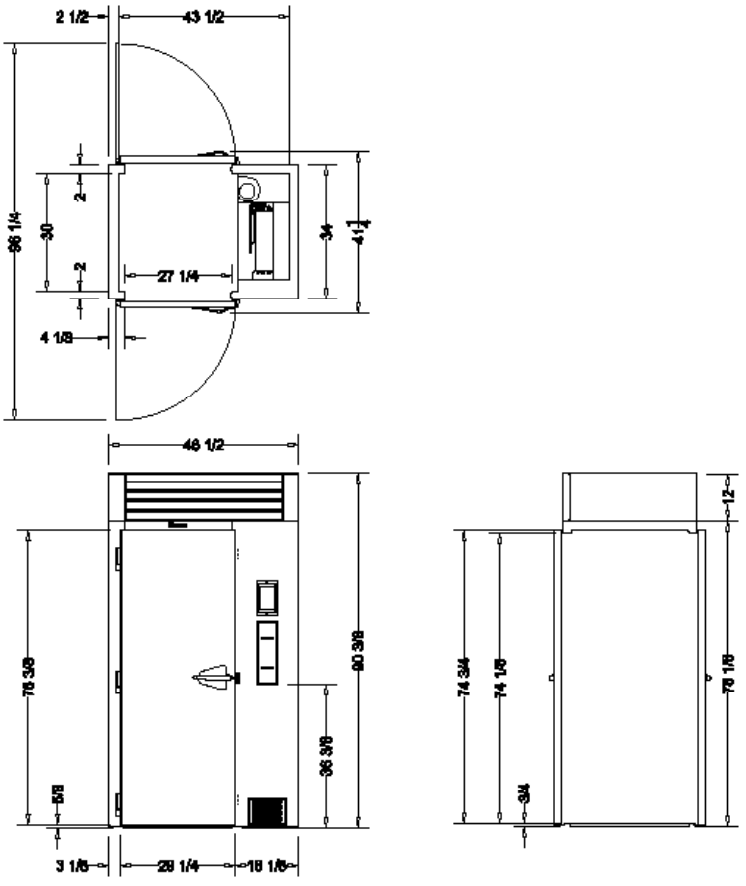
Approval: _____

Traulsen
TRAULSEN
4401 BLUE MOUND RD. FT. WORTH, TX 76106
PHONE 1 (800) 825-8220 FAX-MKTG. 1 (817) 624-4302
Website: www.traulsen.com

Project	Quantity	Item #
Model Specified:		CSI Section 11400



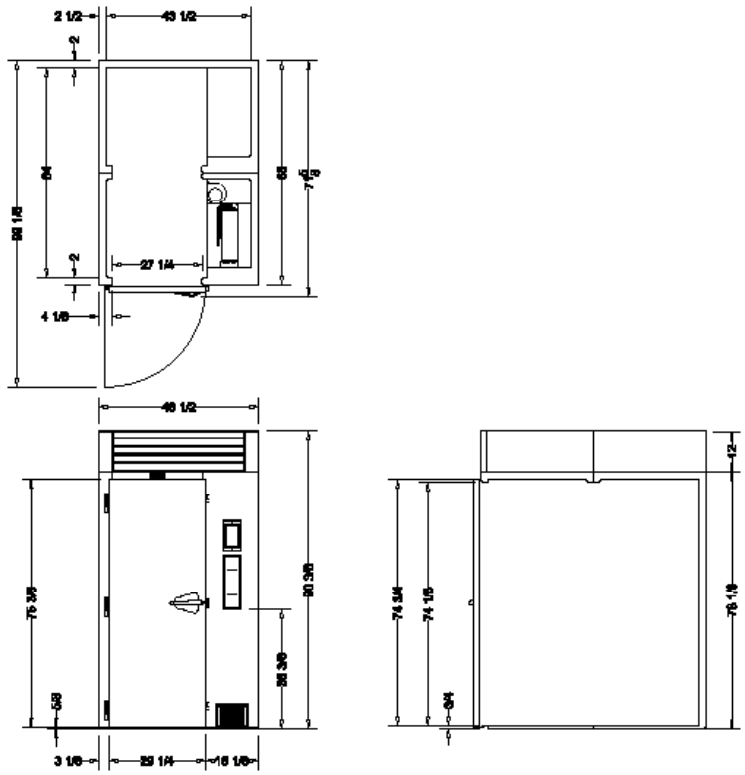
Roll-In Model TBC1H



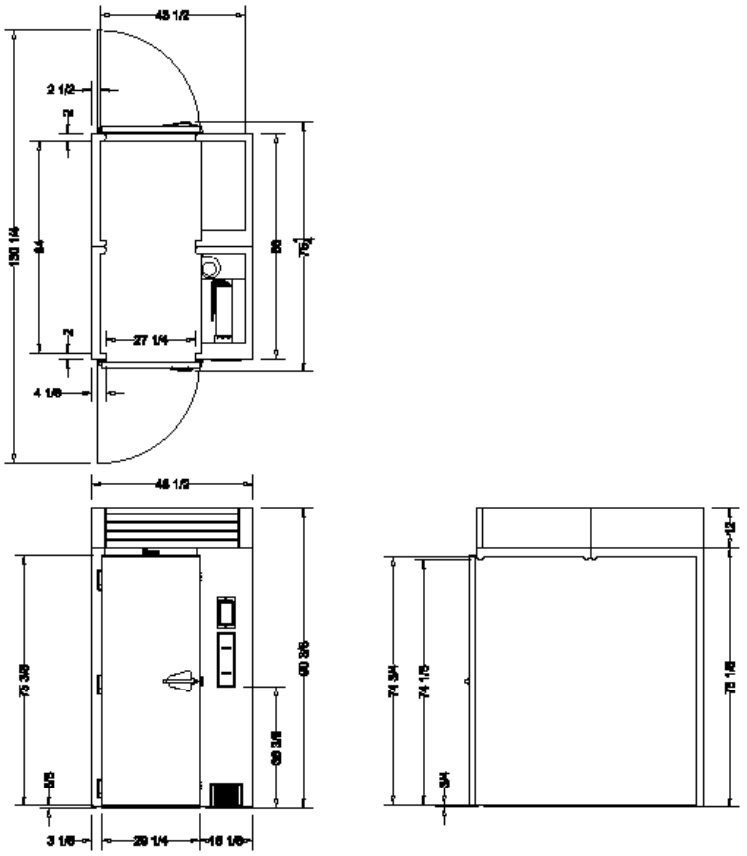
Roll-Thru Model TBC1H

TRAULSEN
4401 BLUE MOUND RD.
PHONE 1 (800) 825-8220
Website: www.traulsen.com
FT. WORTH, TX 76106
FAX-MKTG. 1 (817) 624-4302

Project	Quantity	Item #
Model Specified:		CSI Section 11400



Roll-In Model TBC2H



Roll-Thru Model TBC2H

Traulsen
TRAULSEN
4401 BLUE MOUND RD.
PHONE 1 (800) 825-8220
Website: www.traulsen.com
FT. WORTH, TX 76106
FAX-MKTG. 1 (817) 624-4302

Project	Quantity	Item #
Model Specified:		CSI Section 11400

Specifications

Construction, Hardware and Insulation

Exterior sides, front, rear, door and interior are constructed of heavy gauge stainless steel. Exterior top, back and bottom are constructed of heavy gauge galvanized steel. The interior floor is constructed of stainless steel and insulated with ¾" of resilient cork. Door(s) are equipped with guaranteed for life cam lift hinges with stay open feature at 120°. Guaranteed for life, work flow handle is mounted horizontally over recess in door which limits protrusion from door face into aisle ways. Door is standard with cylinder lock. Easily removable for cleaning, vinyl magnetic gasket assures tight door seal. Anti- condensate heater is located behind door opening. Door is hinged left as supplied standard. Both cabinet and door are insulated with high density, non-CFC foamed in place polyurethane.

It is important to note that the cabinet **TBC2H** is shipped in two-pieces which must be jointed together at the job site by others.

Refrigeration System

Dual refrigeration systems with a unique air circulation system minimize short cycling, while maximizing energy efficient operation and maximizing compressor life. During Blast Chill cycles both systems are in full operation. At the completion of any chill or freeze cycle, one refrigeration system remains in use to maintain proper refrigerated storage temperatures. Each unit requires a separate 4 HP remote condensing unit for blast chill operation **(x2 for TBC2H model)**, and a floor drain or optional condensate evaporator for condensate removal.

Blast Chill Operation

In Blast Chill mode both refrigeration systems, as well as four blowers are in operation. Cabinet air temperature can be as low as -27°F. The control closely monitors both the air and product temperatures to assure rapid chilling without freezing. The operator is notified upon completion of each chill cycle, and the unit automatically begins to maintain proper refrigerated storage temperatures. All chill cycle data is then stored in memory and can either be printed or downloaded to a PC on demand.

Controller

HACCP documentation is facilitated by one on-board printers which records all required product chill cycle information. This same data can also be downloaded through a USB Port.

Roll-In Racks

Readily removable, interior mounted stainless steel guides for rack are provided. Maximum rack(s) size with wheels inboard of frame is 27" wide by 29" deep by 72" high. Racks are typically supplied by others, however these may be purchased directly from Traulsen as an option.

Warranties

The standard warranty is a three year parts and labor warranty on all components and the cabinet, and an additional four year parts only warranty on the ¾ HP maintenance compressor. Also, an on-site service validation is provided by an authorized agent at no-charge upon installation in order to insure proper operation.

TBC1H	Chill Time From 135°F to 40°F
150 (lbs.)	90
200 (lbs.)	90
250 (lbs.)	120
300 (lbs.)	155
TBC2H	**Chill Time From 135°F to 40°F**
300 (lbs.)	90
400 (lbs.)	90
500 (lbs.)	120
600 (lbs.)	155

DIMENSIONAL DATA	TBC1H/ TBC1HR Roll-In/Roll-Thru	TBC2H/ TBC2HR Roll-In/Roll-Thru
Net Capacity cu. ft.	35 (990.5 l)	72.3 (2046 l)
Number of Pans 12" x 20" x 2½" # of Pans Depends Upon Rack Purchased	26	52
Rack Capacity (see "Roll-In Racks")	1	2
Length Overall in.	48½ (123.2 cm)	48½ (123.2 cm)
Depth - Cabinet Only in. / Over Body in.	34 (86.4 cm)	68 (172.7 cm)
Depth - with Door Open 90° in.	65⅛ / 96¼	99⅛ / 130¼
Depth - Overall in.	37⅝ / 41¼	71⅝ / 75¼
Clear Door Width in.	27¼ (69.3 cm)	27¼ (69.3 cm)
Clear Door Height in.	74⅛ (188.3 cm)	74⅛ (188.3 cm)
Height - Overall in.	90⅜ (229.6 cm)	90⅜ (229.6 cm)
ELECTRICAL DATA		
Voltage (hard wired)	115/60/1	208-230/115/60/1
Feed Wires with Ground	3	4
Full Load Amperes	14.9	14.9
Minimum Circuit Ampacity	20	20
REFRIGERATION DATA Holding System Only		
Refrigerant	R404a	R404a
BTU/HR - HP - (x2) ½ HP Holding Compressor	2820	2820
Suction Line in.	⅜ (.95 cm)	⅜ (.95 cm)
Liquid Line in.	¼ (.63 cm)	¼ (.63 cm)

REMOTE CONDENSER

(Note: All models require a remote condenser unit. For additional technical support on optional remote condenser units consult factory.

REFRIGERATION DATA	TBC1H	TBC2H
Refrigerant	R404a	R404a
Voltage	208-230/60/1	(x2) 208-230/60/1
Recommended BTU/HR - HP BTU's are rated at 90° F ambient and a -10° F evaporator temp.	18,700 - 4 HP	(x2) 18,700-4HP
Suction Line in. Ref. Lines at Blast Chill Unit	½ (1.3 cm)	½ (1.3 cm)
Liquid Line in. Ref. Lines at Blast Chill Unit	½ (1.3 cm)	½ (1.3 cm)
Suction Line in. Ref. Line on Remote Condenser	1⅛ (2.9 cm)	1⅛ (2.9 cm)
Liquid Line in. Ref. Line on Remote Condenser	½ (1.3 cm)	½ (1.3 cm)

NOTE

1-Figures in parentheses reflect metric equivalents

***REMOTE COMPRESSOR NOTES:**

1 - See form TR35802 for remote compressor specifications.
2 - Remote compressor installation required by others. Traulsen provides an service agent validation upon completion of remote system installation at no-charge (call 800-825-8220 in order to arrange this).
3 - Remote compressor includes a five year warranty if purchased from Traulsen.

Continued product development may necessitate specification changes without notice.
Part No. TR35930 (revised 1/13)

TRAULSEN
4401 BLUE MOUND RD. FT. WORTH, TX 76106
PHONE 1 (800) 825-8220 FAX-MKTG. 1 (817) 624-4302
Website: www.traulsen.com

TBC-SERIES

Blast Chiller

Remote Optional 4 HP Air Cooled Condensing Unit

Remote Condensing Unit For Models TBC1H, TBC1HR, TBC2H** & TBC2HR** Only

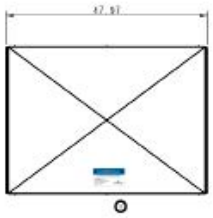
Each TBC1H (roll-in), TBC1HR (roll-thru), TBC2H (roll-in) & TBC2HR (roll-thru) must be connected to a remote R-404A refrigeration system (parallel rack or individual condensing unit capable of moving 18,700 BTU/HR (37,400 for models TBC2H & TBC2HR) from the evaporator(s) at -10 degree F SST after all piping losses are accounted for.

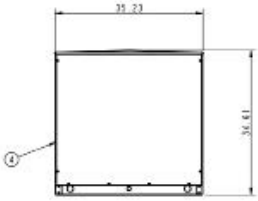
These optional condensing units are adequate for the load only when located and piped so that there is insignificant pressure drop between the condensing unit and the cabinet it serves. Models TBC2H and TBC2HR require two (2) if selecting condensing units from this page.

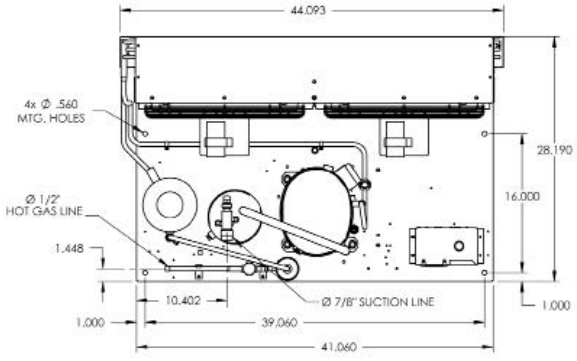
If condensing unit location or piping results in significant pressure drop, the party designing, installing and commissioning the system must select an appropriately-sized condensing unit from another source.

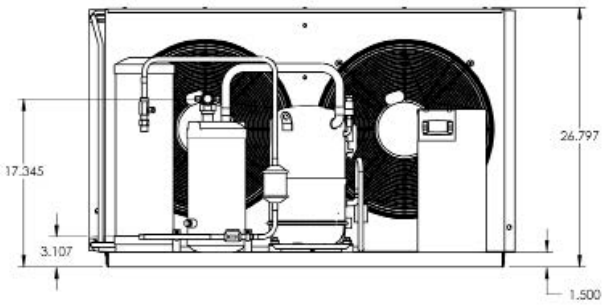
PART NUMBERS	BCACC-60111-10 | BCACC-60123-10
Evaporator Temp Range	+25 to -25°F
Refrigerant	R-404A
Voltage	208-230/60/1 | 208-230/60/3
Minimum Circuit Ampacity	38.9 | 31.5
Maximum Fuse	60 Amp | 50 Amp
Comp RLA	28.2 | 22.3
Comp LRA	146.0 | 114.0
Liquid Line	1/2 SWT
Suction Line	1-1/8 SWT
Length in.	28.2
Width in.	44.1
Height in.	26.8
Net Weight lbs.	300
Receiver Capacity @ 90%	16.7 lbs.
Air Flow - CFM	4240

Optional Weather Hood
for Condensing Unit
Part# BCACC-60122-10
** Two Required for TBC2H & TBC2HR









Performance Data Based On 90°F Ambient, 40°F Return Gas, 5°F Sub Cooling (BCACC-60111-10 & BCACC-60123-10)

EVAP TEMP (°F)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45
UNIT CAPACITY (BTU/HR)	-	-	12,200	13,800	15,500	17,400	19,500	21,700	24,200	26,800	29,700	32,800	36,100	39,600	-	-	-	-

TBC-SERIES
Blast Chiller
Remote Optional 4 HP Water Cooled Condensing Unit

Remote Condensing Unit For Models TBC1H, TBC1HR, TBC2H** & TBC2HR** Only

Each TBC1H (Roll-In), TBC1HR (Roll-Thru), TBC2H (Roll-In), & TBC2HR (Roll-Thru) must be connected to a remote R404A refrigeration system (parallel rack or individual condensing unit(s)) capable of moving approximately 18,700 BTUH (37,400 for TBC2…) from the evaporator(s) at -10°F SST after all piping losses are accounted for.

These optional condensing units are adequate for the load only when located and piped so there's insignificant pressure drop between the condensing unit and the cabinet it serves. TBC2H or TBC2HR requires two (2) if selecting condensing units from this page.

If condensing unit location or piping results in significant pressure drop, the party responsible for designing, installing & commissioning the system must select an appropriately-sized condensing unit from another source.

** Two Required for TBC2H & TBC2HR

PART NUMBERS	BCACC-60228-10 | BCACC-60229-00
Evaporator Temp Range	+25 to -25^{0}F
Refrigerant	R-404A
Voltage	208-230/60/1 | 208-230/60/3
Minimum Circuit Ampacity	35.3 | 27.9
Maximum Fuse	60 Amp | 50 Amp
Comp RLA	28.2 | 22.3
Comp LRA	146.0 | 114.0
Water Connection In	3/4 FPT
Water Connection Out	7/8 OD Sweat
Length in.	27.2
Width in.	21.6
Height in.	21.1
Net Weight lbs.	175
Receiver Capacity @ 90%	16.6
Air Flow - CFM	n/a
Water Flow -GPM	1.7 to 5.0
Pressure Drop	1.6 to 2.1

Performance Data Based On 105°F Condensing, 40°F Return Gas, 5°F Sub Cooling (BCACC-60228-10 & BCACC-60229-00)

EVAP TEMP (°F)	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25
UNIT CAPACITY (BTU/HR)	11,200	12,700	14,400	16,200	18,200	20,400	22,900	25,600	28,600	31,900	35,500	39,400
COND WATER (GAL/MIN)	1.7	1.9	2.1	2.3	2.6	2.8	3.1	3.4	3.8	4.2	4.6	5.0

Quality Refrigeration

OWNER'S MANUAL

Instructions for the installation, use & care of:

TBC Series Blast Chillers
TBC5 Undercounter Model
TBC13 Reach-In Model
TBC1H/TBC1HR Roll-In Model

* Traulsen's blast chillers are solely intended for blast chilling, and not for use as holding cabinets.

I. INSTALLATION CHECKLIST:

☐ Remove the crate and wooden pallet using a 3/4" socket wrench. Do not lay the unit on its front, side or back.

☐ Install in a level location away from extreme heat or cold. Allow adequate clearance for proper airflow.

☐ Install legs or casters (TBC5 & TBC13), or seal to floor (TBC1H). The caster bolts require a 1/2" socket wrench.

⚠ **WARNING: The cabinet must be blocked and stable before installing legs or casters.**

☐ Remove the plastic ties used to secure the interior slides on models TBC5 and TBC13 during shipping.

☐ Select a dedicated electrical outlet of the proper amperage.

NOTE: Do not cut or remove the grounding prong from the plug or use an extension cord.

* TBC5 includes a NEMA 5-15P cord set.
* TBC13 includes a NEMA L-14-20P cord set.
* TBC1H & TBC1HR must be hardwired.

☐ Insure there are no obstructions blocking the louver panel. This will allow for sufficient air flow and maintenance access.

NOTE: Model TBC13 requires 6" clearance on the left and right sides.

☐ Insure that a floor drain or optional condensate evaporator is provided for models TBC13 and TBC1H.

☐ TBC1H/TBC1HR require a remote condensing unit capable of providing 18,700 BTU/hr @ -10°F evaporator temp in a 90°F environment.

NOTE: Proper line sizing should be determined by a qualified refrigeration technician.

☐ Install ramp on model TBC1H/TBC1HR after sealing to the floor.

II. PAN & APPROX. CHILL CAPACITY:

Model	18"x26" Pan	12"x20" Pan	Product Weight
TBC5	5	10	100
TBC13	13	26	200
TBC1H	1 Rack	1 Rack	300

NOTE: Actual weight of product that can be safely chilled within FDA guidelines varies greatly depending upon product density and pan.

III. CARE & MAINTENANCE:

⚠ **WARNING: Disconnect electrical power supply before cleaning any parts of of the unit.**

a. CLEANING THE EXTERIOR & INTERIOR:

Exterior stainless steel should be cleaned with warm water, mild soap and a soft cloth. Apply with a dampened cloth and wipe in the direction of the metal grain. Avoid the use of strong detergents and gritty abrasive cleaners as they may tend to mar and scratch the surface. **Do Not** use cleansers containing chlorine, this may promote corrosion of the stainless steel. For stubborn odor spills, use baking soda and water (1 TBSP baking soda to 1 pint water ratio).

For cleaning stainless steel interiors the use of baking soda as described above is recommended. Use on breaker strips as well as door gaskets. All interior fittings are removable without tools to facilitate cleaning.

b. CLEANING THE CONDENSER:

The self-contained condensing unit requires regularly scheduled cleaning to keep the finned condenser clean of lint and dust accumulation.

To clean the self-contained condenser, first disconnect electrical power, then access the coil:
TBC5 & TBC13: Remove the front louver panel at bottom.
TBC1H/TBC1HR: Remove the louver assembly on the top/front of the cabinet.

Vacuum or brush any dirt, lint or dust from the finned condenser coil, the compressor and other cooking system parts. If significant dirt is clogging the condenser fins, use compressed air to blow this clear.

IV. CHANGING THE PRINTER PAPER:

Printer paper is available from Traulsen or your local Hobart Service office. It's also available at most office supply outlets.
Traulsen Part Number: 400-60003-00
Office Depot Item Number: 302-224
Staples Item Number: PMF-5233

The label printer uses a special peel-off label stock:
Traulsen Part Number: 400-60004-00 (225 labels per roll)

To reload the paper, begin by opening the cover to access the printer(s). Remove the empty paper roll and place a new roll on spindle. Position the paper such that the paper feeds from the back of the roll. This allows the thermal sensitive side of the paper to be on the upper surface as it feeds through the printer. The ends of the spindle are installed in the roll holders on each side of the paper cradle.

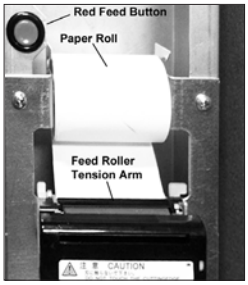
Gently pull the feed roller tension arm slightly forward. It is located on the top of the printer and will open about 90 degrees.

Feed paper down into the loading slot directly behind the fed roller tension arm.

Return the feed roller tension arm to its original position. If this is not closed the printer will not operate. Labels are loaded in the same manner. **NOTE: After turning the chiller on the label printer will automatically orient the next label for printing.**

TR35941 P/N 375-60311-00 (REV. 06-22-15)

IV. CHANGING THE PRINTER PAPER:(continued)



Press the red feed button to feed paper through the printer.

Replace the printer cover or close the printer door, taking care that the paper or label is passed through the paper slot on it's front.

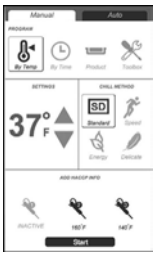
V. OPERATION:

IDLE MODE

STARTING A CHILL CYCLE

AUTO:
1) Place probe in product (must be above 90 degrees F). The chiller will automatically begin a chill cycle in 30-seconds (target 37 degrees F).

OPTIONAL: Press any active probe(s) to enter the PRODUCT and/or USER names.

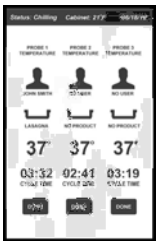


STARTING A CHILL CYCLE

MANUAL (by temp):
1) Place probe(s) in product.
2) Select MANUAL.
3) Adjust target TEMP and CHILL METHOD (if desired, default 37 degrees F).

OPTIONAL: Press any active probe(s) to enter PRODUCT and/or USER names.
4) Press START.

MANUAL (by time):
1) Load product in chiller.
2) Select MANUAL.
3) Adjust target TIME.

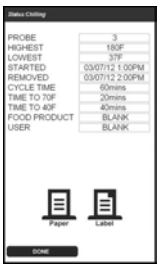


THE RUN SCREEN

OPTIONAL: Press any time zone to enter product and or user names.
4) Press START.

CYCLE COMPLETION & PRINTING
Upon any probe reaching the target temperature the chiller will beep for 20-seconds and the button beneath this probe will change from CANCEL to DONE.

1)Press DONE.



DATA MANAGEMENT

OPTIONAL: Press PRODUCT and/or USER to enter the product and/or user names, if not done previously.
2)Press RECORD and/or LABEL (if equipped with optional label printer) to receive a cycle data printout and/or adhesive label. Repeat for additional copies if needed.
3)Press DONE to return to the RUN (if additional probes are active or done) or IDLE screens.

NOTE: Cycle data can also be downloaded via the USB port by selecting DATA MANAGEMENT in the TOOLBOX.

Many default settings can be adjusted, see full size owner's manual for additional details.

VI. GLOSSARY OF ICONS:

Chill By Temp	**Standard Chill**	**Defrost**
Chill By Time	**Speed Chill**	**Probe**
Chill By Product	**Delicate Chill**	**Time Zone**
Product	**Energy Saving Chill**	**Print Record**
Toolbox	**User**	**Print Label**

VII. TROUBLESHOOTING:

No display on control.	a. Check power supply and circuit breaker. b. System problem. Call for service.
Cycle time longer than expected.	a. Check if door is closed. b. Excessive volume or depth of product loaded. c. Pan covered with a lid, plastic wrap or foil that is not in direct contact with the product. d. Dirty condenser coil. e. Product is of a high density. f. Evaporator coil iced and defrost needed.
Auto start does not work.	a. Probe n/a. Press DONE to release probe for use. b. Probe not placed in product. c. Food probe placed in product below 100^0F. d. Damaged or defective probe.
Chill cycle starts with no product present.	a. Probes started automatically due to their temp rising to 100^0F or more.
Unwanted product freezing.	a. DONE product not removed and new chill cycle started. Remove product when Done. b. Chill cycle By Time set for too long. c. High water content food. Use DELICATE method.
Food drying out during chilling.	a. Food chilled uncovered.
Printer not printing.	a. Printer is out of paper. b. Printer paper may be installed incorrectly. Verify that the thermal sensitive side of the paper. c. Feed door open. d. Paper does not feed or jams behind the paper feed slot in the cover. Remove paper, reinstall correctly.
Condensation on exterior surface.	a. Check door alignment and gasket for proper seal. b. Check door sweep for proper adjustment (roll-ins). c. Electric door heater malfunction. Call for service.
Product temp appears cooler than expected.	a. Product temperatures within batches often vary. Verify product temperature using a thermometer. b. Probe placed incorrectly. Relocate probe. c. Product has very small mass (ex. chicken tender) use chill by time. d. Product held at room temperature too long prior to being placed in chiller. Verify actual product temp.

VIII. SERVICE & PARTS:

Please visit our website @ traulsen.com for additional service and parts information.
From our home page click on the **SERVICE & PARTS** tab, and select one of the following:
SERVICE FINDER
SERVICE PARTS MANUALS
OPERATOR MANUALS
WARRANTY REGISTRATION

Traulsen
Quality Refrigeration

Traulsen
4401 Blue Mound Road Fort Worth, TX 76106
Phone: (800) 825-8220 or (817) 625-9671
Parts Fax: (817) 817-740-6748
Website: traulsen.com

Quality Refrigeration

OWNER'S MANUAL

Instructions for the installation, operation, and maintenance of Blast Chiller models:

*** Traulsen's blast chillers are solely intended for blast chilling, and not for use as holding cabinets.**

TBC5 (5 pan level undercounter model)
TBC13 (13 pan level reach-in model)
TBC1H (1 rack capacity roll-in model)
TBC1HR (1 rack capacity roll-thru model)

This Traulsen unit is built to our highest quality standards. We build our refrigerators, freezers, blast chillers and heated cabinets this way as a matter of pride. This philosophy has made Traulsen the leader in commercial refrigeration since 1938. We thank you for your choice and confidence in Traulsen equipment and we know you will receive many years of utility from this equipment.

All Traulsen units are placed on a permanent record file with the service department. In the event of any future questions you may have, please refer to the model and serial number found on the name tag affixed to the unit. Should you need service, however, call us on our toll free number, 800-825-8220 between 7:30 am and 4:30 pm CST, Monday thru Friday. It is our pleasure to help and assist you in every possible way.

IMPORTANT WARRANTY NOTES

TBC5 & TBC13 Owner/Operators

Please Contact the Service Dept. @ (800) 825-8220 upon start-up to register your warranty

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TBC1H & TBC1HR Owner/Operators

Please contact the Service Dept. @ (800) 825-8220 after installation but before start-up in order to register your warranty and arrange for a mandatory free Installation Validation & Service Check (allow at least 72 hours from time of call for this to be performed)

Contact your local Hobart/Traulsen sales representative to arrange for a free on-site demonstration (after warranty registration and/or installation validation)

FORM NUMBER TR35938 (REV. 06-22-15)

P/N 375-60311-00

I. TABLE OF CONTENTS

II. Introduction

II. a - PURPOSE/OVERVIEW:
Thank you for your decision to purchase a Traulsen Blast Chiller. This important piece of food safety equipment is built to our highest standards and will provide you with years and years of dependable service.

It is important to note that although this product is designed to chill hot product from 135°F down to below 41°F within FDA/HACCP guidelines, several operational factors, such as product temperature, density, loading, etc. will all effect actual chilling performance. As a result, although easy to use, the operation of blast chilling requires diligent attention on the part of the operator(s) in order to insure proper results.

It is also important to note that many perceived service problems can actually be attributed to operational issues, resulting in lost product and/or down time. Please review the instructions contained within this manual completely, and make certain that all operators are well trained in the equipments proper use.

II. b - BASIC OPERATION:
All Traulsen blast chillers accomplish their task by rapidly circulating very cold air. Upon starting a chill cycle using the STANDARD method, interior cabinet air temperature is set to a -27°F differential from the target temperature. When using the default target of 37°F the chiller will cycle between 10°F (OFF) and 14°F (ON). These temps were determined as optimum for rapid chilling product without freezing.

NOTE: For products prone to freezing (ex. high water content such as produce) we recommend use of the DELICATE method. Delicate uses a differential of only -7°F from the target temperature.

The blast chiller will continue this operation until such time as all probes reach the target temperature (when chilling by TEMP) or all time zones have elapsed (when chilling by TIME). At this point it will automatically return to MAINTENANCE operation with cabinet air temperature maintained at the target temperature (default 37°F). This maintains chilled food safely refrigerated and in the case of FREEZE cycles, the product will be held at the correct frozen temperature.

II. c - DEFROST:
All refrigeration equipment require a regular defrost cycle in order to maintain their evaporator coils clear of ice. The Traulsen blast chillers covered in this manual are programmed to automatically defrost every six hours.

The period of defrost will be a maximum of 40-minutes in duration. This is temperature terminated. Should the coils reach their target temperature of 50°F prior to that time elapsing the blast chiller will automatically stop defrosting and return to normal operation.

To increase/decrease the interval between defrost cycles select: **MANUAL - TOOLBOX - USER - SCHEDULED DEFROST**. At the bottom of the screen adjust to the desired defrost interval, then press **SAVE**.

II. c - DEFROST (cont'd):
Product left inside will be safely held because:

a) If occurring at the end of a chill cycle the cabinet air temp of 10-15°F will hold the product safely for the maximum 40-minutes of defrost.

b) If occurring while in maintenance mode the defrost period will almost certainly be significantly less than 40-minutes, so product temperature will not be effected.

NOTE: Do not open the door during defrost unless it is to remove all product inside.

II. d - INSTALLATION CHECKLIST:
Install requirements vary by model...

Model TBC5
1) Insure proper clearances, no obstruction to either front louver for at least 24" from cabinet face.
2) Install all four standard legs or optional casters, insuring that the unit is level for proper operation.
3) Plug the power cord into a dedicated 115 volt/20 amp outlet.
4) Insure the paper supply for the printer(s) is properly installed and that the printers are operational.

Model TBC13
1) Insure proper clearances. No obstruction of the front louvers and 3" on the left, right and rear (86°F or less) or 5-1/2" on the left, right and rear (greater than 86°F).
2) Install the legs or casters, insuring that the unit is level for proper operation.
3) Place condensate tube in to floor drain or install optional condensate evaporator.
4) Plug the power cord into a dedicated 220/115/60/1 volt, 20 amp outlet.
5) Insure the paper supply for the printer(s) is properly installed and that the printers are operational.

Models TBC1H & TBC1HR
1) Insure proper clearances, no obstruction to either front louver for at least 12" above the cabinet. Unit must be located on a level surface.
2) Seal the unit to the floor in accordance with local sanitation codes.
3) Install the door ramp(s).
4) Place condensate tube into floor drain or install optional condensate evaporator.
5) Hardwire to a dedicated 115 volt/20 amp circuit.
6) Insure the paper supply for the printer(s) is properly installed and that the printers are operational.

IMPORTANT NOTE
In order to accomplish blast chilling, models TBC1H and TBC1HR require one properly sized remote condensing unit. This can be purchased from Traulsen or elsewhere, however installation would be by others.

III. RECEIPT INSPECTION

All Traulsen products are factory tested for performance and are free from defects when shipped. The utmost care has been taken in crating this product to protect against damage in transit. All interior fittings have been carefully secured and the legs or casters are boxed and strapped inside to prevent damage. Door keys will be attached to the handle with a nylon strip. The handle is protected by an easily removable nylon netting.

You should carefully inspect your Traulsen unit for damage during delivery. If damage is detected, you should save all the crating materials and make note on the carrier's Bill Of Lading describing this. A freight claim should be filed immediately. If damage is subsequently noted during or immediately after installation, contact the respective carrier and file a freight claim. Under no condition may a damaged unit be returned to Traulsen without first obtaining written permission (return authorization).

IV. INSTALLATION

IV. a - LOCATION:
Select a proper location for your Traulsen unit, away from extreme heat or cold. Allow enough clearance between the unit and the side wall so that the door(s) may open a minimum of 90°.

IV. b - PACKAGING:
All Traulsen units are shipped from the factory bolted to a sturdy wooden pallet and durably packaged. Care should be taken when removing the packaging in order to avoid scratching the unit's exterior metal finish.

To remove the wooden pallet, first if at all possible, we suggest that the cabinet remain bolted to the pallet during all transportation to the point of final installation. The bolts can then be removed with a 3/4" socket wrench. Avoid laying the unit on its front, side or back for removal of the pallet.

NOTE: DO NOT LAY THE UNIT ON ITS SIDE DURING TRANSPORTATION OR INSTALLATION.

IV. c - WIRING DIAGRAM:
Refer to the wiring diagram for any service work performed on the unit. Should you require a wiring diagram, please contact Traulsen Service at (800) 825-8220, and provide the model and serial number of the unit involved.

IV. d - INSTALLING LEGS OR CASTERS:
⚠ WARNING The cabinet must be blocked and stable before installing legs or casters.

6" high stainless steel legs are supplied standard for models TBC5 and TBC13. Casters in lieu of legs are available as an optional accessory for the same models. These are shipped from the factory packed inside a cardboard box which is strapped to one of the shelves. Remove the nylon strap and open the box, it should contain either four (4) legs or casters (and four bolts for each caster).

IV. INSTALLATION (continued)

IV. d - INSTALLING LEGS OR CASTERS (cont'd):
To install the legs or casters, first raise and block the unit a minimum of 7" from the floor.

For model TBC5 slide the legs or casters into the two channels under the front and back of the cabinet (see figure 1). Secure in place by tightening the two bolts located at the base of each leg or caster. NOTE: Legs or casters must be installed towards the four corners of the unit for proper support.

Fig. 1

On model TBC13 thread the legs into the threaded holes on the bottom of the cabinet (see fig. 2). Be certain that all legs are tightened securely. When the unit is set in its final position, it is important for proper operation that the unit be level. The legs are adjustable for this purpose, turn the bottom of the leg counter-clockwise to raise it, clockwise to lower it. Level the unit from front to back as well as side to side in this manner, using a level placed in the bottom of the cabinet.

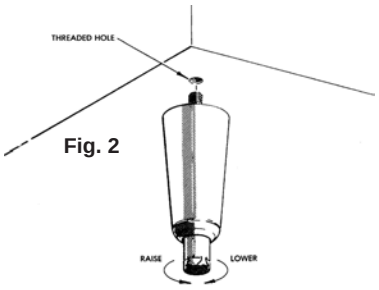


Fig. 2

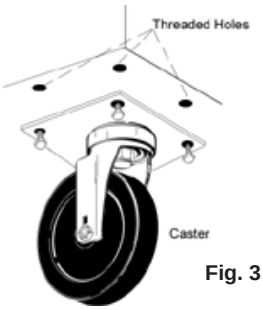


Fig. 3

For installing optional casters, these are "plate" type, and require the use of four (4) bolts to secure them firmly to the cabinet bottom at each corner (see figure 3). The caster bolts are tightened using a 1/2" socket wrench.

IV. e - INTERIOR ARRANGEMENTS:
Models TBC5 and TBC13 are shipped with their full compliment of tray slides already installed from the factory. Upon delivery the plastic ties used to secure these during shipping should be removed prior to first use.

The slides are spaced to allow for maximum capacity of 2" deep pans. If use of deeper pans is required, the slides can be removed and adjusted to accommodate this. However please note that the total quantity of pans possible will be reduced in order to make room for the deeper pans.

Model TBC1H and TBC1HR are designed to accommodate one roll-in rack with overall dimension (wheels inboard of frame) which do not exceed 72" high by 27" wide by 29" deep.

IV. f - ELECTRICAL REQUIREMENTS/CORD & PLUG:
Traulsen models TBC5 and TBC13 are supplied with a cord & plug attached. Models TBC1H and TBC1HR require hard wiring to the power supply, and the 4HP remote condensing unit requires a separate electrical connection of its own. For your safety and protection, all units supplied with a cord and plug include a special three-prong grounding plug on the service cord. Select only a certified electrical outlet with grounding plug for power source. NOTE: Do not under any circumstances, cut or remove the round grounding prong from the plug, or use an extension cord.

A dedicated, grounded circuit should be provided to assure that the computerized control is not adversely affected by the operation of other equipment.

Model TBC5 is provided with a NEMA 5-15P cordset.

Model TBC13 is provided with a NEMA L14-20P cordset.

IV. g - PROPER CLEARANCES:
Model TBC5: Make certain that there are no obstructions in front of the left side louver panel. This will allow for sufficient air flow to the refrigeration system and maintenance access.

Model TBC13: No rear clearance is required. Allow for 6" on either side and make certain that there are no obstructions in front of the louver panel. This will allow for sufficient air flow to the refrigeration system and maintenance access.

Models TBC1H and TBC1HR: Insure an overhead clearance of at least 12". This will allow for sufficient air flow to the refrigeration system and maintenance access.

IV. h - CONDENSATE REMOVAL:
All Traulsen Blast Chill models (except model TBC5) require the use of a floor drain or optional electric condensate evaporator.

Model TBC13 requires either a floor drain or the use of an optional bottom mounted electric condensate evaporator pan kit (TBCACC-BMCE) for condensate removal. The drain port location is at the bottom right of the unit. A receptacle is provided underneath. See the back cover of this manual for installation instructions.

Models TBC1H and TBC1HR require either a floor drain or the use of an optional electric condensate evaporator pan kit (BCACC-FMCE) for condensate removal. This can be installed on the chiller through the access panel located front right at the bottom.

This section applies only to models TBC1H and TBC1HR. A remote condensing unit, operating on R-404A refrigerant, is required for Blast Chill operation on these models. The remote condensing unit should be capable of providing 18,700 BTU/hr @ -10°F evaporator temperature in a 90°F ambient environment.

IV. i - REMOTE CONDENSING UNIT REQUIREMENTS:
Both air-cooled and water-cooled remote condensing units are available from Traulsen as an optional accessory. Increased capacity of the remote condensing unit and line sizing will depend on the length and layout of the connecting piping from the remote condensing unit to the Blast Chill unit. Proper line sizing should be defined by a qualified refrigeration engineer or technician.

IV. j - SEALING ROLL-IN/ROLL-THRU UNITS:
This section applies only to models TBC1H and TBC1HR. Roll-In and Roll-Thru cabinets set on the floor require the floor area to be flat and level. In addition, after the cabinet is set in place, sealant should be used around the perimeter of the base to comply with NSF International requirements. After sealing the unit, the enclosed ramp should then be installed.

IV. k - ON/OFF SWITCH:
The Traulsen Blast Chiller models are all equipped with a power ON/OFF switch intended to cut power to the control as needed. In the event of routine maintenance and/or service is needed, be certain to disconnect the electrical power to the machine and follow lockout/tagout procedures.

This is located on top of models TBC1H, towards the rear on top. On model TBC5, this switch is located in the compressor compartment. On model TBC13 this is located on the bottom right behind the front louver assembly.

V. l - PRINTER PAPER:
Load printer paper as shown in section "V. c" on page 5.

V. m - CAPACITY:
Pan and approximate maximum product weight capacities for the individual blast chiller models is as follows:

	Pans		Product
	18" x 26"	12" x 20"	Weight
• TBC5	5	10	100
• TBC13	13	26	200
• TBC1H	1 Rack	1 Rack	300

Actual capacity (i.e. weight of product) that can be safely chilled within FDA guidelines varies greatly depending upon individual product density and pan loading.

V. CARE & MAINTENANCE

⚠ WARNING Disconnect electrical power supply before cleaning any parts of the unit.

V. a - CLEANING THE CONDENSER:
The most important thing you can do to insure a long, reliable service life for your Traulsen is to regularly clean the condenser coil. The self-contained condensing unit requires regularly scheduled cleaning to keep the finned condenser clean of lint and dust accumulation. Keeping the condenser clean allows the cabinet to operate more efficiently and use less energy.

To clean the self-contained condenser, first disconnect electrical power. To access the coil:

TBC5: Open the refrigeration compartment door on left.
TBC13: Remove the four (4) screws securing the front louver panel at bottom and remove the panel.
TBC1H/TBC1HR: Remove the two (2) bottom screws securing the louver assembly located on the top/front of the cabinet and lift the louvers.

Vacuum or brush any dirt, lint or dust from the finned condenser coil, the compressor and other cooling system parts. If significant dirt is clogging the condenser fins, use compressed air to blow this clear. For care of the remote condensing unit(s) used for models TBC1H & TBC1HR, consult the manufacturer's product literature.

V. b - PRINTER SUPPLIES:
Supplies to support the both standard epicon control printers are available directly from our Parts Department, or from your local Hobart Sales and Service Office. In addition it may also be possible to obtain one of these locally. The record printer paper is standard thermal paper which is readily available at most office supply outlets. Specifications are 2-1/2" wide by 85" long:

Traulsen P/N 400-60003-00
Office Depot #302-224
Staples #PMF-5233

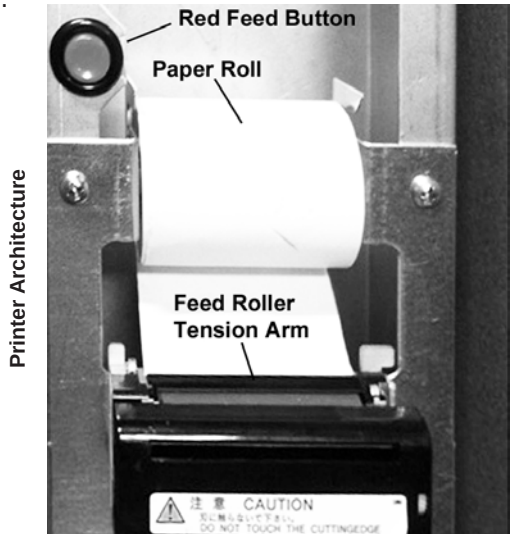
The label printer uses a special peel-off label stock, Traulsen part number 400-60004-00. Each roll contains 225 labels.

V. c - INSTALLING PRINTER PAPER:
To reload record or label paper, begin by opening the cover or door to access the printer(s). Remove the empty paper roll and place a new roll on spindle. Position the paper such that the paper feeds from the back of the roll. This allows the thermal sensitive side of the paper to be on the upper surface as it feeds through the printer. The ends of the spindle are installed in the roll holders on each side of the paper cradle.

Gently pull the feed roller tension arm slightly forward. It is located on the top of the printer and will open about 90 degrees.

V. c - INSTALLING PRINTER PAPER (cont'd):
Feed the paper down into the loading slot directly behind the feed roller tension arm.

Return the feed roller tension arm to its original position. If this is not closed the printer will not operate. Labels are loaded in the same manner. Note after turning the chiller on the label printer will automatically orient the next label for printing.



Printer Architecture

Press the red feed button to feed paper through the printer.

Replace the printer cover or close the printer door, taking care that the paper or label is passed through the paper slot on it's front.

V. d - REPLACING THE BATTERY:
⚠ WARNING Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

Replace battery with Panasonic Corp. Part No. CR2032 only. Use of another battery may present a risk of fire or explosion.

Replacement batteries can be obtained from Digi-Key (www.digikey.com), Newark (www.newark.com), or other suitable suppliers.

The epicon control includes a battery back-up for the real time clock. Should this ever need to be replaced use the following procedure:

Step 1: Turn off power to the blast chiller.
Step 2: Remove the top & bottom screws that hold the bessel on the blast chiller.
Step 3: Carefully pull the assembly out of the cavity.
Step 4: Slide the battery out of it's holder, located on the rear bottom of the control board.
Step 5: Slide a new battery into the holder, making sure that the positive side of the battery faces up as indicated on the battery holder.
Step 6: Install the assembly back in place, tighten the screws to ensure assembly is securely in place.
Step 7: Return power to the blast chiller.

V. CARE & MAINTENANCE

V. e - CLEANING THE EXTERIOR:
Exterior stainless steel should be cleaned with warm water, mild soap and a soft cloth. Apply with a dampened cloth and wipe in the direction of the metal grain. Avoid the use of strong detergents and gritty, abrasive cleaners as they may tend to mar and scratch the surface. **NOTICE** Do **NOT** use cleansers containing chlorine, this may promote corrosion of the stainless steel.

Care should also be taken to avoid splashing the unit with water, containing chlorinated cleansers, when mopping the floor around the unit. For stubborn odor spills, use baking soda and water (mixed to a 1 TBSP baking soda to 1 pint water ratio).

V. f - CLEANING THE INTERIOR:
For cleaning stainless steel interiors, the use of baking soda as described in section "V. d" is recommended. Use on breaker strips as well as door gaskets. All interior fittings are removable without tools to facilitate cleaning.

VI. OTHER

VI. a - TBC1H & TBC1HR SERVICE CHECK & START-UP:
After installation and start-up of models TBC1H or TBC1HR, please contact the Service Department at (800) 825-8220 to arrange for a "Mechanical Installation and Operation Inspection," which is required by Traulsen in order to validate the warranty. On-site inspection not required for models TBC5 and TBC13.

VI. b - SERVICE INFORMATION:
Before calling for service, please check the following:

- ☐ Is the electrical cord plugged in?
- ☐ Is the fuse OK or circuit breaker on?
- ☐ Is the ON/OFF Power Switch in the ON position?

If after checking the above items and the unit is still not operating properly, please contact Traulsen (if under warranty) or an authorized Traulsen service agent. A complete list of authorized service agents was provided along with your Traulsen unit. If you cannot locate this, you may also obtain the name of a service agent from the Service/Contact page of our website: www.traulsen.com.

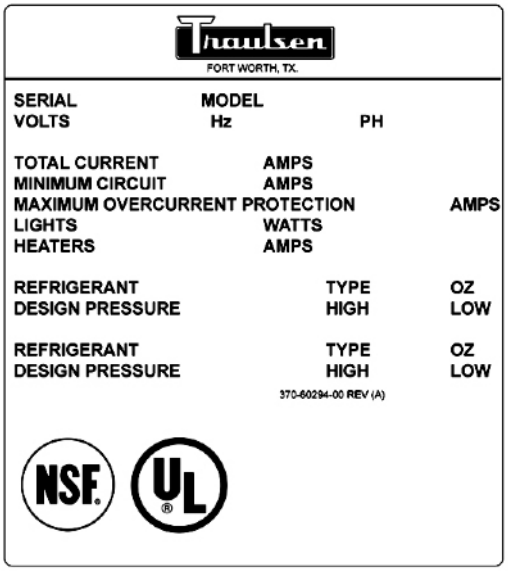
If service is not satisfactory, please contact our in-house service department at:

Traulsen
4401 Blue Mound Road
Fort Worth, TX 76106
(800) 825-8220

Traulsen reserves the right to change specifications or discontinue models without notice.

VI. OTHER

VI. c - THE SERIAL TAG:
The serial tag is a permanently affixed sticker on which is recorded vital electrical and refrigeration data about your Traulsen product, as well as the model and serial number. This tag is located inside the door on the right interior wall of the cabinet.



READING THE SERIAL TAG

- Serial = The permanent ID# of your Traulsen
- Model = The model # of your Traulsen
- Volts = Voltage
- Hz = Cycle
- PH = Phase
- Total Current = Maximum amp draw
- Minimum Circuit = Minimum circuit ampacity
- Lights = Light wattage
- Heaters
- Refrigerant = Refrigerant type used
- Design Pressure = High & low side operating pressures and refrigerant charge
- Agency Labels = Designates agency listings

VI. d - ON-SITE BLAST CHILL TRAINING:
Traulsen offers the operator comprehensive one and two day, on-site training in the proper operation of your Blast Chiller. Contact your authorized Traulsen equipment dealer for pricing information.

VI. e - DEMONSTRATIONS:
Traulsen sales representatives perform in-service operational training for the end-user. Contact your local Traulsen Sales Representative (after completion of the service agency start-up, on required models) to arrange this.

VII. BASIC OPERATING GUIDELINES

VII. a - CHILLING WITHIN HACCP GUIDELINES:

The current FDA Food Code allows much more time for safe chilling than 90-minutes. This actually requires two critical control points of:

a) From 135°F to 70°F within two hours, then...
b) From 70°F to below 41°F within four hours, for a total chill time from 135°F to below 41°F of no more than six hours.

Total chill time can exceed six-hours in duration and still be safe. This safety threshhold does not include:

a) Any time needed for product to chill from any start temp down to 135°F, or...
b) Any time elapsed to chill to below 41°F.

VII. b - LOADING:

To achieve quickest chill times product should be loaded to a depth of no greater than 2" (fig. 1).

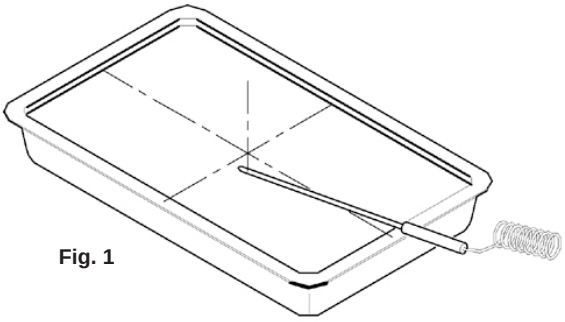


Fig. 1

Products should always be loaded into the shallowest pan possible.

Chilling of products of greater than 2" depth is often possible within FDA guidelines. However please note that actual chill times are a function of: Start Temperature, Product Density, Product Depth, and Total Load.

Chilling of products, such as whole cooked chickens or meatloaf can be accomplished. However these should be positioned inside the chiller to allow the air-flow to contact the greatest surface area of the product.

VII. c - USE OF FOOD PROBES:

For most accurate results food probes should be used. These need to be properly placed in the center of the thickest part of the product to insure an accurate temperature reading.

Some products are not suitable for use of food probes. These products...

a) Should be chilled by **TIME**.
b) The correct chill time should be established by the operator based upon actual product testing.
c) The end cycle temperature should be verified manually with a clean, accurate thermometer as soon as the pre-established chill time elapses.

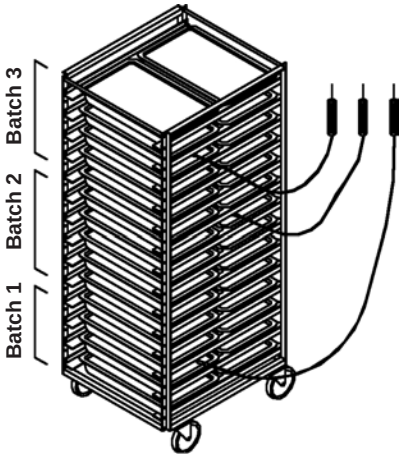
VII. d - COVERING PRODUCT:

Product does not always need to be covered. However before doing so please consider the following potential scenarios...

a) If large loads of especially hot product are chilled there is the potential to freeze the coil.
b) Loads of uncovered product that require especially long chilling times may have the potential to experience surface drying.
c) Loads that are left uncovered in the chiller for long periods after completion of a chill cycle may also experience surface drying of the product if left uncovered.
d) Loads of especially liquid product, such as soup, are highly recommended to be covered in order to prevent accidental spillage.
e) Some foods, such as rice and pasta, are particularly vulnerable to drying and so should always be covered.

VII. e - MULTI-BATCHING:

Often an operator may wish to chill less than a full load of product, and/or to chill multiple types of products simultaneously, or at different intervals. This is known as "Multi-Batching."



In a multi-batching scenario it is critically important to manage the use of probes. For example if more than four different products need to be chilled, it is necessary to take the following into consideration:

- Like products should be grouped together in a single batch using one probe.
- Different products, or products started at different times should each have their own probe.
- If more than three products will ultimately be placed in the chiller at the same or different times, it will be necessary to: a) group like products together, or b) group unlike products together with the probe placed in the product which will take the longest to chill.

In the latter scenario the easier to chill product will be safely chilled by default.

VIII. THE EPICON CONTROL

VIII. a - THE EPICON CONTROL - OVERVIEW:

The Idle Screen
(indicates the chiller is in hold mode)

Traulsen blast chillers are equipped with our exclusive epicon control. This has a durable, water resistant, touch screen interface for ease of use, and is surrounded by a heavy gauge metal frame to protect it from damage.

The epicon control can be used in one of two distinct operating modes: **AUTO** or **MANUAL**.

VIII. b - MODES OF OPERATION:

The first mode of operation is **AUTO**. This is designed to start a chill cycle whenever one or more probes is placed into product above 90 degrees F, insuring proper operation.

MANUAL is a fully adjustable mode which allows the operator to select from a wide range of chill settings.

VIII. c - CHILL PROGRAMS:

Within the **AUTO** and **MANUAL** modes of operation, the operator can select that the chill cycle be regulated by either product core temperature, time, or by a previously prepared recipe.

Temp: Cycle ends upon reaching target temp.

Time: Cycle ends upon time elapsing.

Product: Chill according to an previously saved product "recipe."

VIII. d - OPERATING METHODS:

The EPICON control also allows the operator to select from different cycle types, including Standard, Speed, Energy and Delicate.

SD Standard: Basic blast chill or freeze cycle.

Speed: Provides for fastest possible chilling.

Energy: Slightly slower chilling in a more energy efficient manner.

Delicate: Chill products prone to freezing with warmer, slower air.

VIII. e - MAINTENANCE MODE:

At the end of every chill or freeze cycle the blast chiller will automatically switch to MAINTENANCE MODE. In this mode the cabinet will revert to a holding cabinet, where it will maintain an air temperature consistent with the target temperature. For example if the target temp was set at 37°F than the hold temp will be 37°F. If the target temp was 0°F than the hold temp will be 0°F.

Regardless of cycle type or target temperature, after pressing **DONE** for all probes or zones the chiller will automatically operate in **IDLE MODE** at 37°F.

VIII. f - THE TOOL BOX:

The toolbox allows the operator to adjust default operating parameters, update control software, retrieve past chill cycle data, monitor chiller operation, and make use of service diagnostics.

To access the **TOOLBOX** features press the toolbox icon on the **MANUAL** menu. The **SECURITY LEVEL** screen will appear (fig. 2). Some areas of the control are password protected. Selecting a secure area will prompt a keyboard to appear on the display.

Factory Default Passwords

- **USER: No password**
- **SUPERVISOR: 1234***
- **SERVICE: 4401**

***Can be changed if needed.**

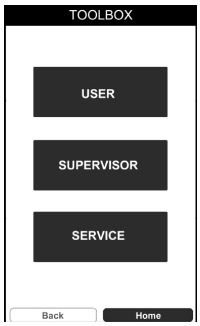


Fig. 2

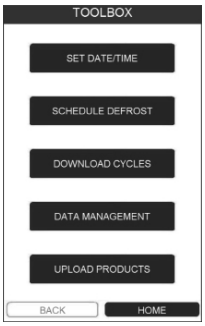


Fig. 3

The most common operations are included inside the non password protected **USER MENU** (fig. 3).

VIII. g - FOOD PROBES:

Three food probes are provided, numbered 1 thru 3 to help the operator identify different products and/or batches. Each probe's activity status is indicated on the display as:

INACTIVE: Probe is available for placing in hot product.

ACTIVE: Probe has been inserted into hot product, but chill cycle has not yet been started.

IN USE: Cycle in progress, product core temperature is displayed underneath the probe icon on the run screen.

DONE: Displayed on the RUN screen, this indicates that it's cycle has been completed and product is ready to remove.

VIII. h - USB PORT:

A standard USB data port is provided. This allows the operator to download chill cycle data on to a thumb drive for easy transer to a PC. It is also used to update the control's operating software.

VIII. THE EPICON CONTROL

VIII. i - TIME ZONES:
When chilling without probes the epicon control allows for operation by an operator determined time. In the **TIME** program there are three time zones provided which make multi-batching possible.

Selecting a time zone permits entry of both a product and/or user name, just as is done when using probes.

The zones are not specific to any location or number of pans in the chiller. The operator should determine how best to utilize these, for example Zone 1 = Top, Zone 2 = Middle, etc.

VIII. j - USER NAMES:
USER (i.e. operator) names can be programmed into the chiller memory using the **TOOLBOX**. If a user name is selected at the beginning of a chill cycle it will appear under the **USER** icon on the **RUN SCREEN**, as well as on any record or label printouts for that chill cycle.

If no **USER** name is selected at the beginning of a chill cycle **NO USER** will appear under the **USER** icon on the **RUN SCREEN**, as well as on any record or label printouts for that chill cycle.

At the end of the chill cycle a **USER** name may be entered prior to printing by pressing **DONE** and then the space marked **BLANK** next to user.

VIII. k - PRODUCT NAMES:
PRODUCT names can be programmed into the chiller memory using the **TOOLBOX**. If a product name is selected at the beginning of a chill cycle it will appear under the **PRODUCT** icon on the **RUN SCREEN**, as well as on any record or label printouts for that chill cycle.

If no **PRODUCT** name is selected at the beginning of a chill cycle **NO PRODUCT** will appear under the **PRODUCT** icon on the **RUN SCREEN**, as well as on any record or label printouts for that chill cycle.

At the end of the chill cycle a **PRODUCT** name may be entered prior to printing by pressing **DONE** and then the space marked **BLANK** next to **FOOD PRODUCT**.

VIII. l - RECORD & LABEL PRINTERS:
At the end of any chill cycle the epicon control allows the operator to print cycle data and/or print an adhesive label for the product container (on models equipped with the optional label printer). The label printer provides a condensed "**LABEL**" type of report with both **PRODUCT** and **USER** information.

IX. OPERATION

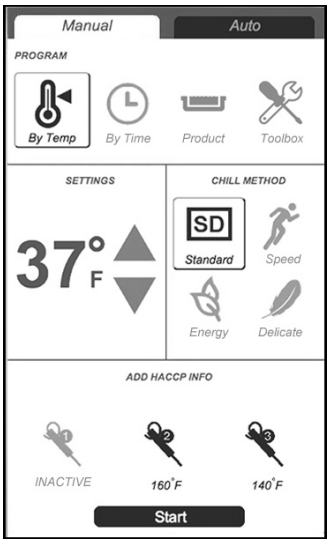
IX. a - BASIC OPERATION - AUTO:
Begin by pressing **AUTO** from the idle screen or simply insert a probe into hot product. Upon sensing hot product, the control will begin a 30-second count down to auto-start, at which time the chiller will begin a chill cycle in standard mode with a default end point of 37°F.

NOTE: Food must be above 90°F in order to **AUTO** start.

Before start, the operator can press any active probe in order to add their name, and/or the product name, to the cycle data.

When adding probes to a chill cycle already in process simply place any available probe into hot product above 90°F and these will be automatically added. Please note however that when doing so the USER and PRODUCT names cannot be added until cycle's end.

IX. b - BASIC OPERATION - MANUAL:
MANUAL mode allows adjustments to be made to all chilling parameters, thus customizing the cycle to best suit the product and/or process.



To start a chill cycle using **MANUAL** mode...

1) Begin by pressing **MANUAL** from the idle screen.

2) If all displayed parameters are OK press any active **PROBE** (indicated by a temperature displayed below highlighted probe icon) to enter the **PRODUCT** and **USER** names and either:

a- enter the **PRODUCT** and **USER** names, or...
b- press **SKIP** for both **PRODUCT** and **USER**.

3) Press **START** to begin a chill cycle using the factory default parameters.

IX. OPERATION (cont'd.)

IX. b - BASIC OPERATION - MANUAL (cont'd):
If parameters are not OK manually program the chill cycle using the following procedure:

1) Begin by choosing from **TEMP**, **TIME**, or **PRODUCT**.

NOTE: Selecting **PRODUCT** prompts a list of chill recipes to appear on the display. Select a product from the list and press **START** to start the chill cycle using the parameters set up for that specific product.

2) Adjust the **SETTINGS**. These are the desired end-point temperature (adjustable from +40 to -5°F or chill time (adjustable from 5-minutes to 6-hours, in 5-minute intervals).

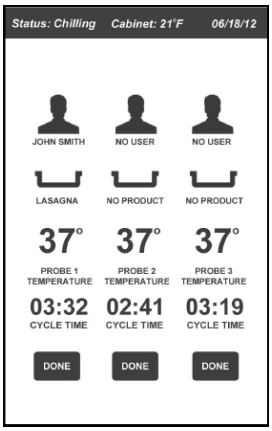
3) Select a chill **METHOD**. Choose from **STANDARD**, **SPEED**, **ENERGY** or **DELICATE**.

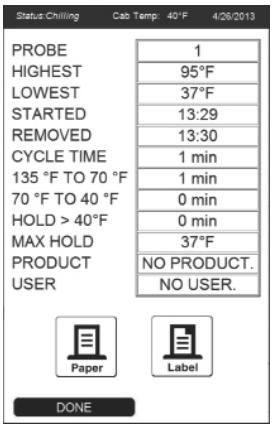
4) Press any active **PROBE** (indicated by a temperature displayed below highlighted probe icon) to enter the **PRODUCT** and **USER** names.

5) Press **START** to begin a chill cycle using the selected parameters.

NOTE: If programming is stopped at any point prior to pressing **START** the control will timeout in 2-minutes. The blast chiller will first return to the **IDLE MODE** and then **AUTO** start a chill cycle if one or more probes had been placed in product above 90°F.

IX. c - PRINTING:
When any probe reaches it's designated target temperature (or when the time of any zone elapses), the blast chiller will beep for 20-seconds indicating that the cycle has completed. The control display will show **DONE** beneath this probe or zone.





Press **DONE** and the the control will display the PRINT screen. The operator can then select...

IX. c - PRINTING:
NO PRODUCT: to add a product name to the cycle data.
NO USER: to add a user names to the cycle data.
PAPER: to receive a cycle data printout.
LABEL: to receive an adhesive lable for the product container.

After printing, press **DONE** to move on to any remaining probes which require printing, or to return to the run or idle screens.

IX. d - ADDING PRODUCT TO A CYCLE IN PROGRESS:
Additional products can be added to chill cycles already in progress when using either the **AUTO** or **MANUAL** mode.

For cycles started using either **AUTO** or **MANUAL**, simply insert an available probe into the new hot product to be added. The chiller will automatically add this probe to the cycle.

This can be repeated as long as there remains an available probe or zone to use with the new product.

IX. e - FREEZING PRODUCT:
Freezing is done using the **MANUAL** mode. From the MANUAL programming screen...

1) Begin by inserting a probe into the product(s) to be frozen.
2) Press **MANUAL** then **TEMP**.
3) Adjust **SETTINGS** to desired target temp.
4) Select **METHOD** if other than **STANDARD** is needed.
5) Select active **PROBE**. Add operator and product name if desired.
6) Press **START**.

NOTE: Upon cycle completion the chiller will automatically enter "Maintenance Mode" at the target temperature.

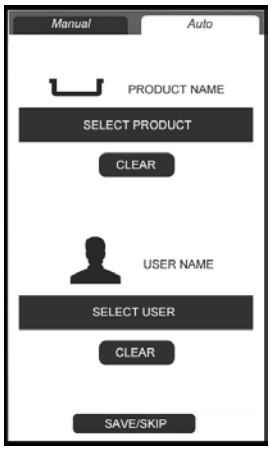
IX. OPERATION (cont'd.)

IX. f - ENTERING PRODUCT/USER NAMES AT CYCLE START:

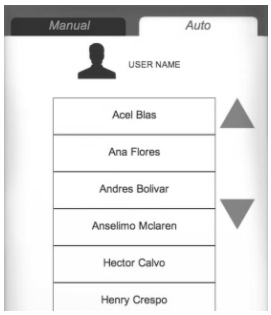
The epicon control provides two opportunities to enter both the product and operator's name. One at the beginning of the cycle, and the other at the end of the cycle. This varies by **OPERATING MODE**.

USING AUTO MODE

Prior to cycle start, press any active probe (by temp) or zone (by time) on the **MAIN MENU** screen in order to access the Product/Operator Name Entry Screen, shown below.



Pressing either **SELECT PRODUCT** or **SELECT USER** will prompt a drop down list of products or users to choose from, shown below.



Select the **PRODUCT** then **USER** names. Once done the control will automatically return to the **AUTO**, **MANUAL** or **RUN** screen. At the end of the cycle this information will be displayed on the Print Screen and included on any **RECORD** and/or **LABEL** printouts.

USING MANUAL MODE

Prior to cycle start, press any active probe (by temp) or time zone (by time) on the **MAIN MENU** screen in order to access the Product/Operator Name Entry Screen, shown below.

A keyboard will appear on the display. Type in the **PRODUCT** name using the keyboard or press **SEARCH** to select an existing name from a drop down list of products. Press **ENTER** when done.

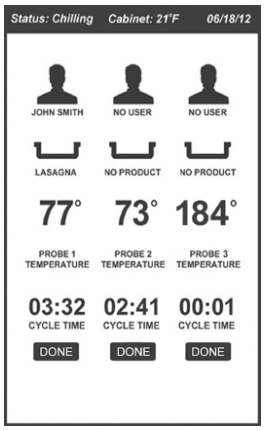
Another keyboard will appear on the display. Type in the **USER** name using the keyboard or press **SEARCH** to select an existing name from a drop down list of products. Press **ENTER** when done.

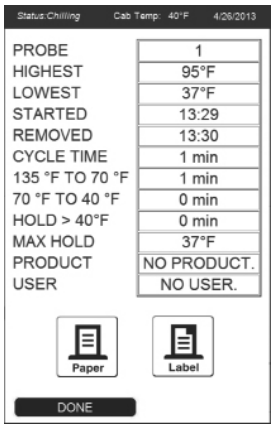
Once done the control will automatically return to the **AUTO**, **MANUAL** or **RUN** screen. At the end of the cycle this information will be displayed on the Print Screen and included on any **RECORD** and/or **LABEL** printouts.

IX. OPERATION (cont'd.)

IX. g - ENTERING PRODUCT/USER NAMES AT CYCLE END:
The epicon control provides two opportunities to enter both the product and operator's name. One at the beginning of the cycle, and the other at the end of the cycle. This varies by **OPERATING MODE**.

At cycle end press **DONE** to access the Print Screen. Press **FOOD PRODUCT** and/or **USER** to prompt a keyboard with which to enter information for each, shown below.





Press **ENTER** when done. The control will automatically return to the **PRINT** screen where the entered information will now be displayed. It will also be included on any **RECORD** and **LABEL** printouts.

IX. h - UPDATING SOFTWARE:
Updates to the operating software will occasionally become available, usually via e-mail or web download. The update file should be saved to the root directory of the thumb drive.

To update the operating software...

1) Place thumb drive into the chiller's USB data port.

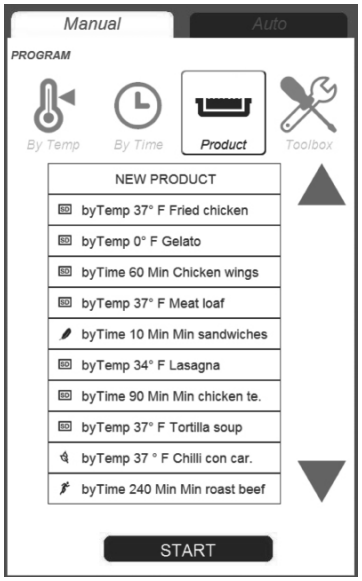
2) Press **MANUAL** - **TOOL BOX** - **SERVICE**.

3) Type in your password. Note the factory default password is **4401**.

4) Update the appropriate software

5) Restart the chiller when prompted.

IX. i - SAVING RECIPES:
Individual chill recipes can be saved to memory for later retrieval. To create and save a recipe to the **PRODUCT** menu...



1) Press **MANUAL** then **PRODUCT**.
2) Select **NEW PRODUCT** from the drop down menu.
3) A keyboard will appear. Type in the product's name and press **ENTER**.
4) Select chill by **TEMP** or **TIME**.
5) Adjust **SETTINGS** and select **CHILL METHOD**.
6) Press **SAVE**.

The control will return to the **IDLE** screen.

Factory preloaded recipes include:

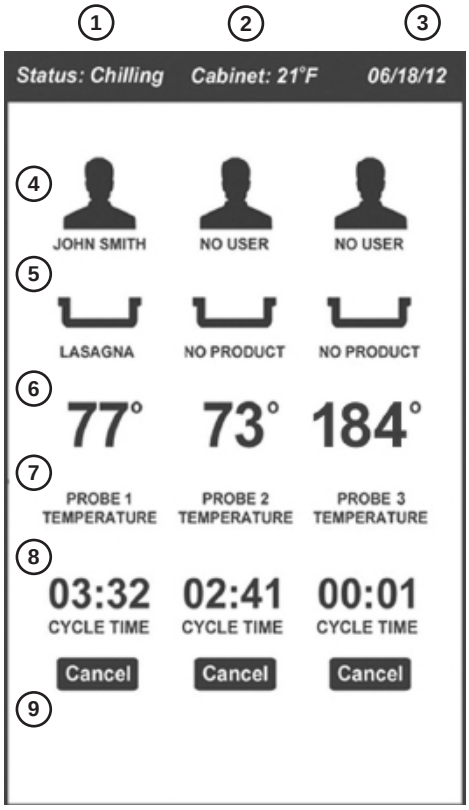
- **CHICKEN**
- **CHICKEN (SPEED MODE)**
- **CHICKEN (ENERGY MODE)**
- **TOSSED SALAD**
- **FROZEN LASAGNA**
- **FROZEN LASAGNA (SPEED MODE)**
- **FROZEN LASAGNA (ENERGY MODE)**
- **MIXED VEGETABLES**
- **MIXED VEGEATBLES (ENERGY MODE)**
- **CHICKEN NUGGETS**

IX. j - CANCELLING A CHILL CYCLE:
Should you wish to cancel an active chill cycle in progress, press **CANCEL** underneath the desired **PROBE** or **ZONE**. Doing so does not cancel any other batches in progress. If you wish to cancel all active batches press **CANCEL** for each active **PROBE** or **ZONE**.

NOTE: When cancelling a batch all of it's chill cycle data will be lost.

IX. OPERATION (cont'd.)

IX. k - UNDERSTANDING THE RUN SCREEN:
The **RUN** screen appears on the display during any active chill cycle. It provides the operator with important in-cycle data intended to aid with managing multiple batches.



1) **Operation Status**: Chilling or Hold
2) **Actual Cabinet Air Temperature**
3) **Today's Date**
4) **Operator Name**: default NO USER
5) **Product Name**: default NO PRODUCT
6) **Current Product Core Temperature**
7) **Probe Number**: 1 - 2 - 3
8) **Time Elapsed Since Cycle Start**
9) **Cancel Button**

IX. l - DELETING RECIPES:
The epicon control also allows for existing chill recipes in the product menu to be deleted if desired. To do so...

1) Select **MANUAL**
2) Select **TOOLBOX**
3) Select **SUPERVISOR** (password 1234)
4) Select **DELETE RECIPES**. A list of all recipes is displayed.
5) Select the recipes you want to delete (these will turn red when selected).
6) Press **DELETE**
7) Press **RETURN** to exit

X. TOOLBOX FEATURES

X. a - ACCESSING THE TOOLBOX:
From the **MANUAL** menu screen press the **TOOLBOX** icon.

The control will now display the **TOOLBOX** access menu (fig. 1).

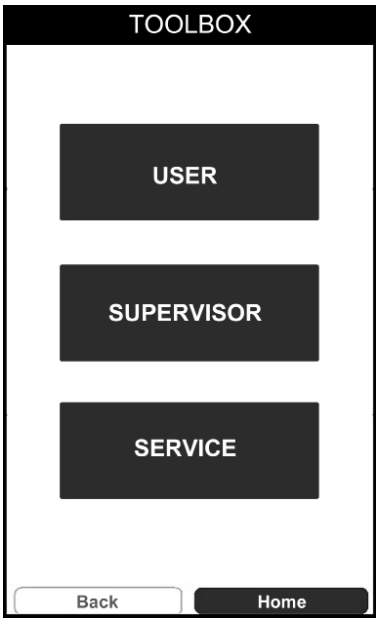


Fig. 1

Press **USER** for operator level access (fig. 2).

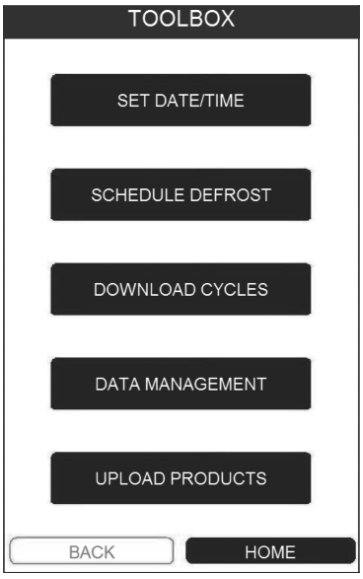


Fig. 2

This level allows you to: Set the Clock, Adjust Defrost Time and Settings, Download Cycle Data, Search Chill Cycle History, and Upload Recipes to the **PRODUCT** menu.

X. TOOLBOX FEATURES (cont'd)

X. a - ACCESSING THE TOOLBOX (cont'd):
Press **SUPERVISOR** for supervisor access. Note that this not intended for every day access and adjustments and so is password protected (fig. 3). Enter your access code to proceed. The factory default code is **1234**. This can be changed in the **SUPERVISOR** level.

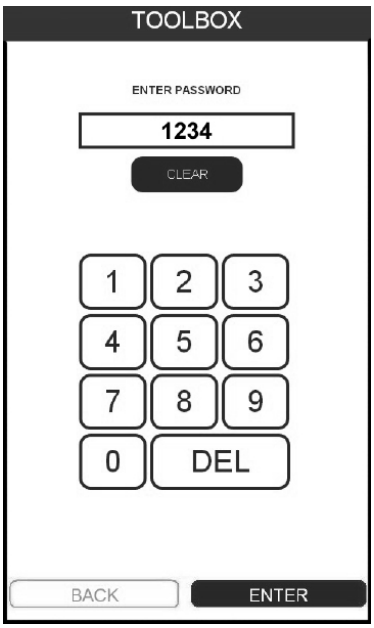


Fig. 3

Press **SERVICE** to access the service menu. Note that this is password protected. In the event you need to access this **TOOLBOX** level please contact the Traulsen Service Department at (800) 825-8220 to obtain a valid access code.

X. b - USER MENU, SETTING THE CLOCK:
Begin by pressing **MANUAL** - **TOOLBOX** - **USER**, then press **SET DATE/TIME**. The display will change to the **SET DATE/TIME** screen (fig. 4).

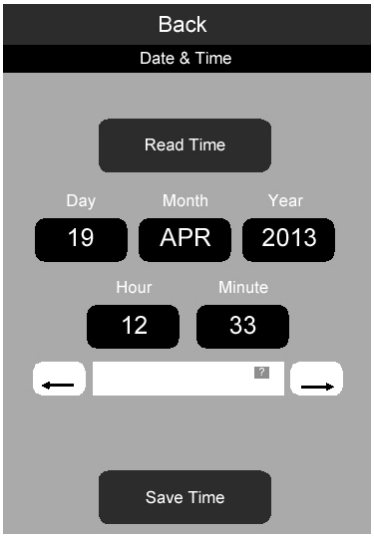


Fig. 4

X. b - USER MENU, SETTING THE CLOCK (cont'd):
To adjust the Date and time settings:

1) Press **DAY** - **MONTH** - **YEAR** - **HOUR** - **MINUTE** as needed (after doing so the field will be highlighted).
2) Toggle the LEFT/RIGHT arrows at bottom to adjust this parameter
3) Proceed to the next parameter.
4) Press **SAVE TIME** to save these settings.

X. c - USER MENU, ADJUSTING DEFROST SETTINGS:
The **DEFROST** menu allows you to adjust both the start time and interval (hours) between defrost cycles in order to better suit operational requirements. Defrost cycles are preset from the factory to occur every six-hours.

To adjust the defrost settings, begin by pressing **MANUAL** - **TOOLBOX** - **USER**, then press **SCHEDULE DEFROST**. The display will change to the **DEFROST** screen (fig. 5).

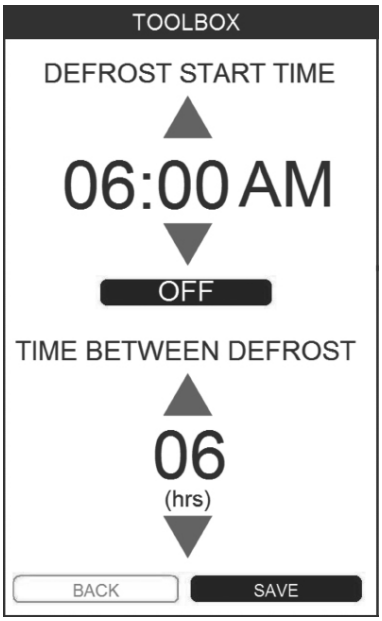


Fig. 5

Should you wish to adjust the time of day that the first defrost cycle occurs press the UP or DOWN arrows to set the **DEFROST START TIME** then press the **OFF** button. It will change to indicate that this feature is **ON**.

You may also adjust the interval between defrost cycles by pressing the UP or DOWN buttons under **TIME BETWEEN DEFROST**

Press **SAVE** to lock-in these settings.

X. d - USER MENU, DOWLOAD CYCLE DATA:
Begin by inserting a formatted thumb drive into the USB port. Press **MANUAL** - **TOOLBOX** - **USER**, then press **DOWNLOAD CYCLES**. All cycle data in the control's memory will be downloaded to the thumb drive.

X. TOOLBOX FEATURES (cont'd)

X. e - USER MENU, SEARCH CHILL CYCLE HISTORY:
The **DATA MANAGEMENT** feature allows you to retrieve cycle data memory within a selected a date range (beginning/end) for printing or downloading to a thumb drive. To access the **DATA MANAGEMENT** feature begin by pressing **MANUAL** - **TOOLBOX** - **USER**, then press **DATA MANAGEMENT**. The **DATA MANAGEMENT** screen will appear (fig. 6).

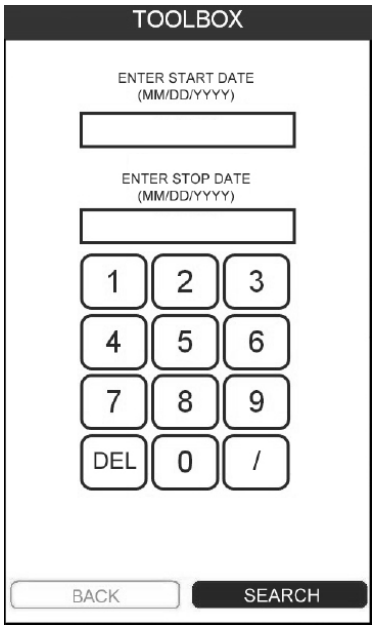


Fig. 6

Enter the **START** and **STOP** dates in a **MM/DD/YYYY** format to establish the search range, then press **SEARCH** (see fig. 7).

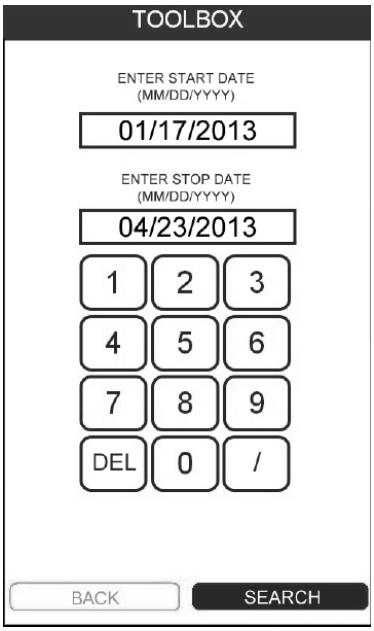


Fig. 7

X. e - USER MENU, SEARCH CHILL CYCLE HISTORY:
The selected data will appear on the display. You can select one or more items from the list by pressing the appropriate cycles (s) or print/export all shown (fig. 8).

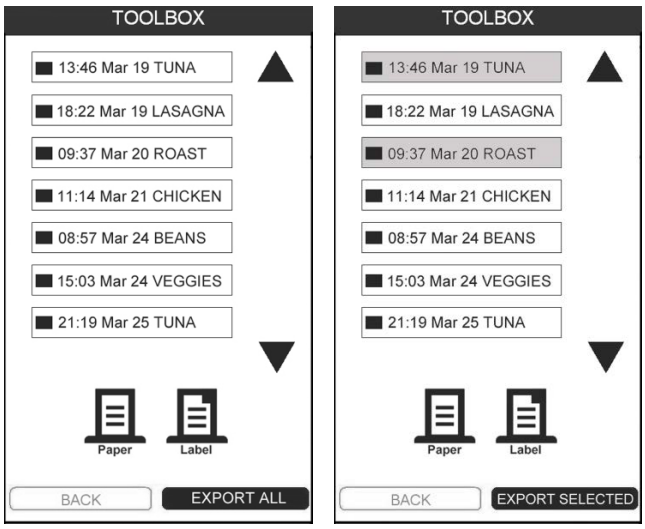


Fig. 8

Press **PAPER** to print a record of all displayed or selected cycles.

Press **LABEL** to print an adhesive label of all displayed or selected cycles.

Press **EXPORT SELECTED** or **EXPORT ALL** to load all the selected or displayed cycles to a thumb drive through the USB port (a thumb drive must be loaded).

This data is saved to a csv type file and can be opened as an EXCEL spreadsheet (fig. 9).

Press **BACK** when done to exit.

X. f - USER MENU, UPLOADING RECIPES:
Begin by inserting a thumb drive containing properly formatted recipes into the USB Port. Press **MANUAL** - **TOOLBOX** - **USER**, then press **PRODUCTS**. The recipes will be transferred to the **PRODUCT** menu.

ID	Probe or Zone	User name	Product name	Start date	Start time	End date	End time	Cycle time	Min temp	Max temp	Time to 70F	Time to 40F
3	1	CHARLES	Chicken	Tue Apr 09 2013	08.59.40	Tue Apr 09 2013	12.30.14	03.30.34	35	187	97	118

Fig. 9

IX. GLOSSARY OF ICONS

By **TEMPERATURE** chill mode

By **TIME** chill mode

The **TOOLBOX**

STANDARD chill method

SPEED chill method

DELICATE chill method

ENERGY chill method

USER name

Food **PROBE**, numbered 1-2-3

PRODUCT name

DEFROST cycle in progress

By **PRODUCT** chill mode

Print **RECORD**

Print **LABEL**

Time **ZONE**, numbered 1-2-3

XII. TROUBLESHOOTING

SYMPTOM	POTENTIAL CAUSE	SOLUTION
1. No display on control.	a. No power to unit.	Check power supply and circuit breaker.
	b. System problem.	Call for service.
2. Batch requires too much time to chill product down target temperature or time.	a. Door not closed properly.	Close door completely.
	b. Too much product loaded.	Adjust the load to not exceed capacity of the unit.
	c. Product depth in pan exceeds 2”.	Reduce pan load.
	d. Pan has been covered with a lid, plastic wrap or foil, and this is not in direct contact with the product.	Cover product correctly.
	e. Product loaded is of a high density.	Allow additional chilling time.
	f. Dirty condenser coil.	Clean condenser coil.
	g. Evaporator coil iced.	Allow chiller to defrost.
3. Auto mode does not appear to work when placing probe in hot product.	a. Probe not available.	Press DONE to release probe for use.
	b. Probe not placed in product.	Place probe in product.
	c. Food probe placed in product below 90° F.	Manually program cycle and select probe.
	d. Damaged or defective food probe.	Replace with new food probe.
4. Chill cycle starts with no. product present	a. Door open.	Close door.
	b. Hot product inside but no probe placed.	Press CANCEL then place probe to start cycle.
5. Unwanted product freezing.	a. Previously chilled product not removed.	Remove DONE product before starting a new chill cycle.
	b. Chill cycle By Time set for too long.	Reduce cycle time.
	c. High water content food (ex. soup).	Use DELICATE method.
6. Food drying out during chilling.	a. Food chilled uncovered.	Cover food before placing in chiller.
7. Printer not printing.	a. Printer is out of paper.	Replace printer paper.
	b. Printer paper installed incorrectly.	Reload paper with the thermal side up.
	c. Paper does not feed or jammed.	Remove paper and reinstall correctly.
8. Condensation on exterior surface.	a. Door out of alignment or gasket issue.	Check door alignment and gasket for proper seal.
	b. Door sweep worn/out of adjustment (TBC1H).	Adjust/replace door sweep.
	c. Electric door heater malfunction.	Call for service.
9. Upon starting a chill cycle, the product temperature displayed appears cooler than expected (cooked) temperature.	a. Varied product temps within batch.	Verify actual product temp using a manual thermometer.
	b. Probe placed incorrectly.	Relocate probe.
	c. Small mass product (ex. chicken tender).	Use chill by time.
	d. Product held at room temp too long.	Verify actual product temp using a manual thermometer.

XIII. WARRANTY INFORMATION

STANDARD DOMESTIC WARRANTY

TRAULSEN warrants new equipment to the original purchaser, when installed within the United States against defective material and workmanship for three (3) years from the date of original installation. Under this warranty, TRAULSEN will repair or replace, at its option, including service and labor, all parts found to be defective and subject to this warranty. Warranty term begins upon date of installation, the date of End User Invoice or the date of Dealer Invoice, whichever is proven to occur latest, not to exceed 18 months from Dealer Invoice date (the "Warranty Period"). Warranty excludes components that are removable without tools.

The compressor part (self-contained only) is warranted for an additional two (2) years. During this period TRAULSEN will supply replacement compressor(s) if deemed defective, however, all installation, recharging and repair costs will remain the responsibility of the owner.

This warranty does not apply to damage resulting from fire, water, burglary, accident, abuse, misuse, transit, acts of God, terrorism, attempted repairs, improper installation by unauthorized persons, and will not apply to food loss.

THERE ARE NO ORAL, STATUTORY OR IMPLIED WARRANTIES APPLICABLE TO TRAULSEN, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TRAULSEN SHALL HAVE NO OBLIGATION OR LIABILITY FOR CONSEQUENTIAL OR SPECIAL DAMAGES, GROWING OUT OF OR WITH RESPECT TO THE EQUIPMENT OR ITS SALE, OPERATION OR USE, AND TRAULSEN NEITHER ASSUMES NOR AUTHORIZES ANYONE ELSE TO ASSUME FOR IT ANY OBLIGATION OR LIABILITY IN CONNECTION WITH THE EQUIPMENT OR ITS SALE, OPERATION OR USE OTHER THAN AS STATED HEREIN.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED AND CONSTITUTES TRAULSEN'S FULL OBLIGATION AND LIABILITY. WARRANTIES NOT AVAILABLE ON REMOTE MODELS.

INTERNATIONAL COMMERCIAL WARRANTY

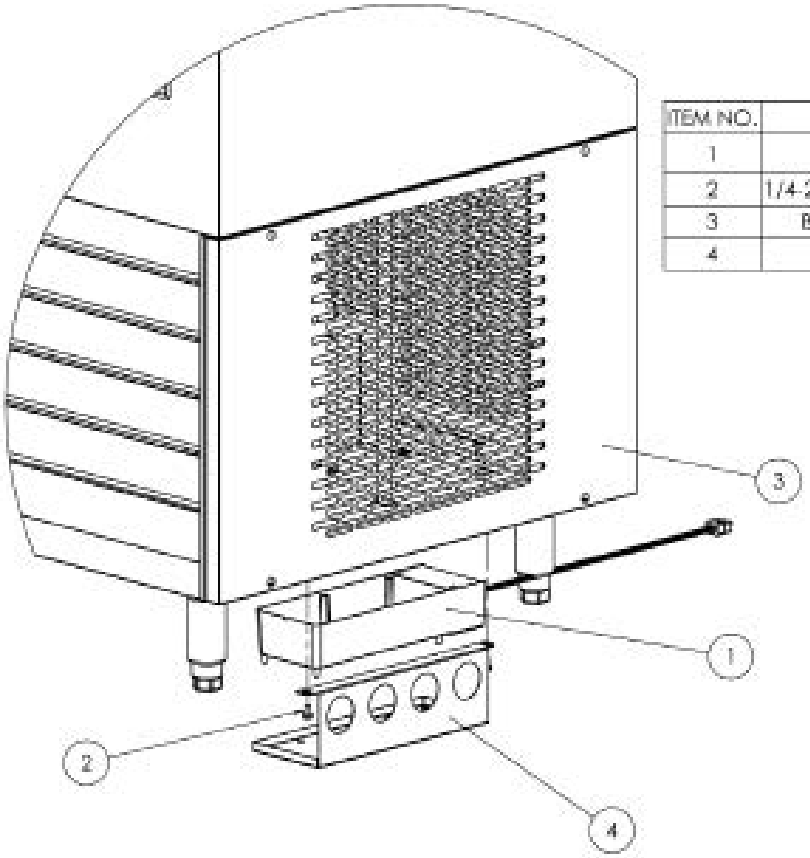
TRAULSEN warrants to the original purchaser the Refrigeration Equipment manufactured and sold by it to be free from defects in material and workmanship under normal use and service for a period of one (1) year from date of shipment. Under this warranty, **TRAULSEN** will reimburse the purchaser for the replacement of any part of said equipment (excluding dryers & refrigerant gas) which then proves to be defective. **This warranty does not apply to damage resulting from fire, water, burglary, accident, abuse, misuse, transit, acts of God, terrorism, attempted repairs, improper installation by unauthorized persons, and will not apply to food loss.**

TRAULSEN'S standard warranty does not apply to Export Sales. Rather, for a period of one (1) year from date of original installation not to exceed Fifteen (15) months from date of shipment from factory, TRAULSEN will, at Traulsen's sole discretion, replace, F.O.B. factory, any defective parts normally subject to warranty and will not cover the cost of packing, freight or labor such costs being the sole responsibility of the dealer.

THERE ARE NO ORAL, STATUTORY OR IMPLIED WARRANTIES APPLICABLE TO TRAULSEN, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TRAULSEN SHALL HAVE NO OBLIGATION OR LIABILITY FOR CONSEQUENTIAL OR SPECIAL DAMAGES, GROWING OUT OF OR WITH RESPECT TO THE EQUIPMENT OR ITS SALE, OPERATION OR USE, AND TRAULSEN NEITHER ASSUMES NOR AUTHORIZES ANYONE ELSE TO ASSUME FOR IT ANY OBLIGATION OR LIABILITY IN CONNECTION WITH THE EQUIPMENT OR ITS SALE, OPERATION OR USE OTHER THAN AS STATED HEREIN.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED AND CONSTITUTES TRAULSEN'S FULL OBLIGATION AND LIABILITY. WARRANTIES NOT AVAILABLE ON REMOTE MODELS.

TBC13 Condensate Kit Install Instructions



ITEM NO.	DESCRIPTION
1	ELEC. COND. EVAPORATOR ASSY.
2	1/4-20 X 1/2 HWH MACHINE SCREW
3	BOTTOM SIDE COVER TBC13
4	BMCE BRACKET TBC13

1. INSTALL THE UNIT ON THE SUPPORTS PROVIDED (CASTERS/LEGS)
2. LOCATE THE MOUNTING HOLES ON THE SYSTEM BASE ON THE RIGHT HAND UNDERSIDE OF THE UNIT BEHIND THE BOTTOM SIDE COVER.
3. MOUNT THE BMCE BRACKET WITH THE SCREWS PROVIDED (1/4"-20 X 1/2" HEX HEAD) TO THE MOUNTING HOLES
4. PLACE THE CONDENSATE EVAPORATOR ASSY. ONTO THE BMCE BRACKET WITH THE PLUG FACING THE BACK OF THE UNIT
5. LOCATE THE RECEPTACLE ON THE UNDERSIDE OF THE UNIT BEHIND THE MOUNTED CONDENSATE EVAPORATOR ASSY. (RECEPTACLE END CAN BE SEEN THROUGH THE HOLES ON THE SYSTEM COVER FOR LOCATING).
6. INSERT THE PLUG INTO THE RECEPTACLE MAKING SURE IT IS FULLY INSERTED
7. PLACE THE LOOSE END OF THE PLASTIC DRAIN TUBE INTO THE CONDENSATE EVAPORATOR ASSY.
8. VERIFY THAT THE HEATER IS WORKING. IF IT IS NOT WORKING THE PLUG IS NOT FULLY INSERTED INTO THE RECEPTACLE OR NEEDS TO BE REINSERTED THE OTHER DIRECTION.

Traulsen
Quality Refrigeration

Traulsen
4401 Blue Mound Road Fort Worth, TX 76106
Phone: (800) 825-8220 Fax-Svce: (817) 740-6757
Website: www.traulsen.com

HOURS OF OPERATION:
Monday thru Friday 7:30 am - 4:30 pm CST

TRAULSEN BLAST CHILLERS

Models: TBC5, TBC13, TBC1H & TBC1HR

training guide

Traulsen

TRUSTED.

Table of Contents

The Toolbox

The toolbox allows the operator to adjust the default operating parameters, update control software, retrieve past chill cycle data, and monitor chiller operation.

To access the **TOOLBOX** press the toolbox icon on the **MANUAL** menu. The **ACCESS LEVEL** screen will appear. Some areas of the control are password protected. Selecting a secure area will prompt a keyboard to appear on the display. The default password for the **SUPERVISOR LEVEL** is 1234, and for the **SERVICE LEVEL** is 4401.

The most common operations are included inside the non password protected **USER** menu.

Automatic cycle start insures proper operation and safe food!

Placing Probes/Loading Pans

Basic Probe Placement

1. Place probes into thickest part of the product.
2. With product like chicken the probe should not be placed where it is touching bone.
3. With full pans of product such as casseroles locate the probe in pan center.
4. In all cases probe tip should not touch pan bottom.

Properly Placed Probes

NOTE

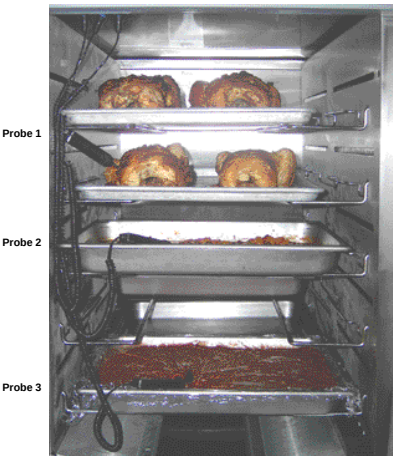
Using probes with small size products (like chicken strips) is not recommended. See **CHILL BY TIME** for correct chilling method.

Probes & Multi-Batching

1. It is OK to load more than one type of product.
2. When loading more than 3 pan levels it will be necessary to group like products together, using one probe for each product group (see example at right).

Proper Probe Placement for Multi Batching

Probe 1: Grouped product (2 pans whole roast chicken)
Probe 2: Other Product One (1 pan chicken cutlets)
Probe 3: Other Product Two (1 pan baked beans)



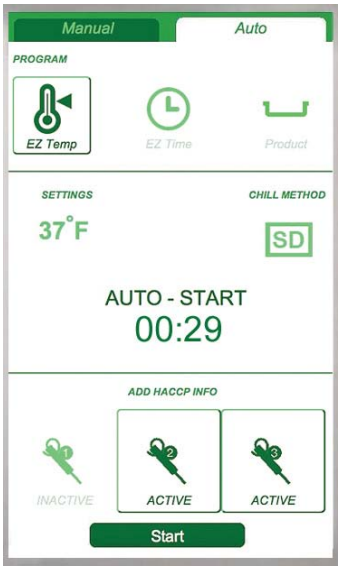
Covering Product

1. Covering product is recommended but not absolutely required.
2. If used, plastic wrap/aluminum foil must be placed in direct contact with product surface.
3. Some starch products are likely to dry out if not covered (ex. mashed potatoes, pasta, rice, cous cous, etc.).
4. Covering is recommended to prevent drying if product will not be removed when done or left inside overnight.

Starting a Chill Cycle Using Auto Mode

Auto Mode Intended Operation

Traulsen's TBC blast chiller is designed to operate in one of two modes, AUTO and MANUAL. AUTO is intended for use by novice operators and those operations in which there is no variation in chilling needs. It does not require for any buttons to be pushed. Proper placement of the probe into hot product will cause a chill cycle to commence. Chilling will continue until the product core reaches the target temperature of 37 degrees F.



To Start a Blast Chill Cycle Using Auto Mode

1. Place hot product into the blast chiller.
2. Insert one of more probes into product.
3. Close the door. The display will begin counting down from 30 and upon time elapsing will commence chilling.

OPTIONAL: Prior to cycle start, press any active probe on the display to enter product and user names from a drop down list.

To Add Additional Products/Probes to a Chill Cycle Already in Progress

1. Place additional hot product into the blast chiller.
2. Insert one of more probes into product.
3. Close door. The newly added probe(s) will appear on the display and the chill cycle will now continue until these probes have reached their target temp.

NOTE: This can be repeated as as long as there is an available probe.

NOTE: Traulsen's blast chillers are solely intended for blast chilling, and not for use as holding cabinets.

Starting a Chill Cycle Using Manual Mode

Manual Mode Intended Operation

The TBC's second mode of operation is MANUAL. MANUAL is intended for use by advanced operators and those operations which have much variation in their chilling needs. It requires some buttons to be pushed. Upon completing cycle programming and pressing START, chilling will commence and continue until the product core reaches the operator adjustable target temperature or time.

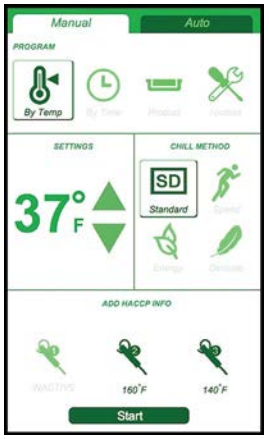
To Start a Blast Chill Cycle Using Manual Mode

1. Place hot product into the blast chiller.
2. Insert one of more probes into product (not required for chill cycles to be done by time).
3. Close the door.
4. Press the **MANUAL** tab at the top of the display.
5. If default settings are OK press **START**. Otherwise select from **TEMP**, **TIME** or **PRODUCT**:
   - **TEMP**: chill cycle ends upon reaching target temp (requires use of probes).
   - **TIME**: chill cycle ends upon time elapsing (does not require use of probes)..
   - **PRODUCT**: chill cycle runs based upon preloaded parameters for a given product name.
6. Adjust target **TEMPERATURE** or **TIME**.
7. Select chill method:
   - **SD**: standard blast chill/freeze.
   - **SPEED**: provides for faster chilling.
   - **ENERGY**: provides for energy saving operation.
   - **DELICATE**: for use with products prone to freezing.

OPTIONAL: Prior to cycle start, press any active probe on the display (or press a zone if chilling by time) in order to enter product and user names.

8. Press **START** to begin a cycle using these settings.

The IDLE Screen



The MANUAL Screen

To Add Additional Products/Probes to a Chill Cycle in Progress

1. Place additional hot product into the blast chiller.
2. Insert one of more available probes into product.
3. Close door. The newly added probe(s) will appear on the display and the chill cycle will now continue until these probes have reached their target temp.

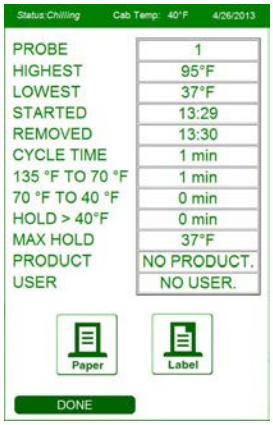
NOTE: This can be repeated as as long as there is an available probe.

Printing/Data Management

Printing Cycle Data

When one or more probes reach the target temperature or time, an alarm will sound for 20-seconds and DONE will appear on the display under the appropriate probe or zone.

The RUN screen at cycle's end



The PRINT Screen

To Retrieve Data and/or Print

1. Press **DONE**. The print screen for that probe or zone will appear on the display. All HACCP data appears on the screen for manual logging.

OPTIONAL: Press **NO PRODUCT** and/or **NO USER** in order to input thproduct and user names if not done earlier.

2. Press **PAPER** in order to receive a cycle data printout.
3. Press **LABEL** in order to receive an adhesive label for the product containers (for chillers equipped with the optional label printer only). Repeat for additional labels.
4. Press **DONE** for the next probe or to return to the run or idle screens.

NOTE
Sanitize probes after each use.

Saving Recipes

The epicon control allows you to program individual chill recipes, by name. These are saved to the **PRODUCT** file shown on the **MANUAL** menu screen.

1. Press **MANUAL** then **PRODUCT**.
2. Select **NEW PRODUCT** from the drop down menu.
3. A keyboard will appear, type in the **PRODUCT NAME** and press **ENTER**.
4. Select to by **TEMP** or **TIME**.
5. Adjust **SETTINGS** and select **CHILL METHOD**.
6. Press **SAVE** to save this to the Product Menu.

Chilling Without Probes

1. Press **MANUAL** then **TIME**.
2. Adjust the target time.
3. Press any time zone. A keyboard will appear. Type in the **PRODUCT and USER** names (or press **SKIP**) then press **ENTER**.
4. Press **START** to begin a chill cycle using these settings.

Care & Cleaning

NOTE: Never place wet and/or sanitized pans or utensils inside the chiller!

Probes

1. Remove probes by turning the circular locking ring which secures these inside the chiller (fig. 1).
2. Wash/sanitize probes (fig. 2). Probes can be totally immersed in water during cleaning.
3. Allow probes to air dry before replacing in chiller.

fig. 1

Interior/Exterior

1. Disconnect power supply.
2. Clean both interior and exterior with a soft cloth as you would any other stainless steel surface.
3. Do **NOT** use cleansers containing chlorine.
   Do **NOT** clean with anything abrasive.
   Do **NOT** hose off the blast chiller.

fig. 2

Condenser

Cleaning this is critical to insuring proper performance and long compressor life.

1. Disconnect power supply.
2. Lift-up or remove louvers covering coil location:
   - **TBC5:** Front/Left
   - **TBC13:** Front/Bottom
   - **TBC1H:** Front/Top
3. Wipe coil fins clear of any dust/debris using a dry cloth or stiff bristle brush (fig. 3).
4. Replace louvers.
5. Restore power

fig. 3

Changing The Paper and/or Label Rolls

1. Open printer door or remove cover (older models).
2. Remove empty paper roll and spindle. Replace with new paper or label roll. Be sure to load paper with the thermal side facing up.
3. Lift feed roller tension arm.
4. Place paper edge on feed roller.
5. Close feed roller tension arm.
6. Press the red button to feed paper through the printer.
7. Close printer door or replace cover.

Printer Supplies:
Paper: Traulsen P/N 400-60003-00 • Office Depot #302-224 • Staples #PMF-5233
Label: Traulsen part number 400-60004-00. Each roll contains 225 labels.

Troubleshooting

SYMPTOM	POTENTIAL CAUSE	SOLUTION
1. No display on control.	a. No power to unit.	Check power supply and circuit breaker.
	b. System problem.	Call for service.
2. Batch requires too much time to chill product down target temperature or time.	a. Door not closed properly.	Close door completely.
	b. Too much product loaded.	Adjust the load to not exceed capacity of the unit.
	c. Product depth in pan exceeds 2”.	Reduce pan load.
	d. Pan been covered with a lid, plastic wrap or foil, and is this not in direct contact with the product.	Cover product correctly.
	e. Product loaded is of a high density.	Allow additional chilling time.
	f. Dirty condenser coil.	Clean condenser coil.
	g. Evaporator coil iced.	Allow chiller to defrost.
3. Auto mode does not appear to work when placing probe in hot product.	a. Probe not available.	Press DONE to release probe for use.
	b. Probe not placed in product.	Place probe in product.
	c. Food probe placed in product below 90° F.	Manually program cycle and select probe.
	d. Damaged or defective food probe.	Replace with new food probe.
4. Chill cycle starts with no. product present	a. Door open.	Close door.
	b. Hot product inside but no probe placed.	Press CANCEL then place probe to start cycle.
5. Unwanted product freezing.	a. Previously chilled product not removed.	Remove DONE product before starting a new chill cycle.
	b. Chill cycle By Time set for too long.	Reduce cycle time.
	c. High water content food (ex. soup).	Use DELICATE method.
6. Food drying out during chilling.	a. Food chilled uncovered.	Cover food before placing in chiller.
7. Printer not printing.	a. Printer is out of paper.	Replace printer paper.
	b. Printer paper installed incorrectly.	Reload paper with the thermal side up.
	c. Paper does not feed or jammed.	Remove paper and reinstall correctly.
8. Condensation on exterior surface.	a. Door out of alignment or gasket issue.	Check door alignment and gasket for proper seal.
	b. Door sweep worn/out of adjustment (TBC1H).	Adjust/replace door sweep.
	c. Electric door heater malfunction.	Call for service.
9. Upon starting a chill cycle, the product temperature displayed appears cooler than expected (cooked) temperature.	a. Varied product temps within batch.	Verify actual product temp using a manual thermometer.
	b. Probe placed incorrectly.	Relocate probe.
	c. Small mass product (ex. chicken tender).	Use chill by time.
	d. Product held at room temp too long.	Verify actual product temp using a manual thermometer.

Glossary of Icons


By **TEMP** chill mode

STANDARD chill method


USER name

Time **ZONE**, numbered 1-2-3


By **TIME** chill mode


SPEED chill method


PRODUCT name

Print **RECORD**


By **PRODUCT** chill mode


DELICATE chill method


DEFROST cycle in progress


The **TOOLBOX**


ENERGY chill method

Food **PROBE**, numbered 1-2-3

Print **LABEL**

Traulsen
TRUSTED.

4401 Blue Mound Road, Fort Worth, TX 76106 • (800) 825-8220 • www.traulsen.com

Traulsen Refrigeration

SERVICE MANUAL #07

Instructions For The Installation, Troubleshooting And Repair Of Traulsen epicon® Equipped Blast Chiller Models

Undercounter Model TBC5
Reach-In Model TBC13
Roll-In/Roll-Thru Models TBC1H, TBC1HR, TBC2H & TBC2HR

-NOTICE-

This Manual is prepared for the use of trained Authorized Traulsen Service Agents and should not be used by those not properly qualified. This manual is not intended to be all encompassing, but is written to supplement the formal training, on-the-job experience and other product knowledge acquired by Authorized Traulsen Service Agents. Before proceeding with any work, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed only by a trained Authorized Traulsen Service Agent.

FORM NUMBER TR99999 - REV. 8/13

I. TABLE OF CONTENTS

Visit the Resource Center @ www.traulsen.com to review the Operator's Video for this product.

II. GENERAL INFORMATION

II. a - INTRODUCTION:
Blast Chillers are food processing refrigerators designed for rapid chilling of product from 140 F to 40 F in approximately 90 minutes, for reheating and/or serving at a later time.

These models aid in preserving food quality, texture and nutritional value, in addition to enhancing food safety.

All of the information, illustrations and specifications contained within this manual are based on the latest product information available at the time of printing.

II. b - OPERATION:
Refer to the instructions contained in the Owner's Manual, form number TR35938, for specific operating instructions.

II. c - CLEANING:
Detailed cleaning instructions are included with each unit, however, special care MUST be given to the condenser coil(s). These must be cleaned WEEKLY. This surface must be kept free of dirt and grease for proper system operation. This can be done with a vacuum cleaner using a brush attachment, or a stiff brush or wisk broom. Care must be taken not to damage the condenser coil fins. For more information please refer to section V. a, V. e, and V. f of the Blast Chill Owner's Manual.

II. d - APPLICABLE MODELS:
This manual applies to the following Traulsen models:

TBC5 Undercounter Blast Chiller
TBC13 Reach-In Blast Chiller
TBC1H & TBC2H Roll-In Blast Chillers
TBC1HR & TBC2HR Roll-Thru Blast Chillers

PLEASE NOTE: This manual refers to the above models built after June 2012, equipped with the epicon® control. For information regarding models built prior to that date please contact the factory.

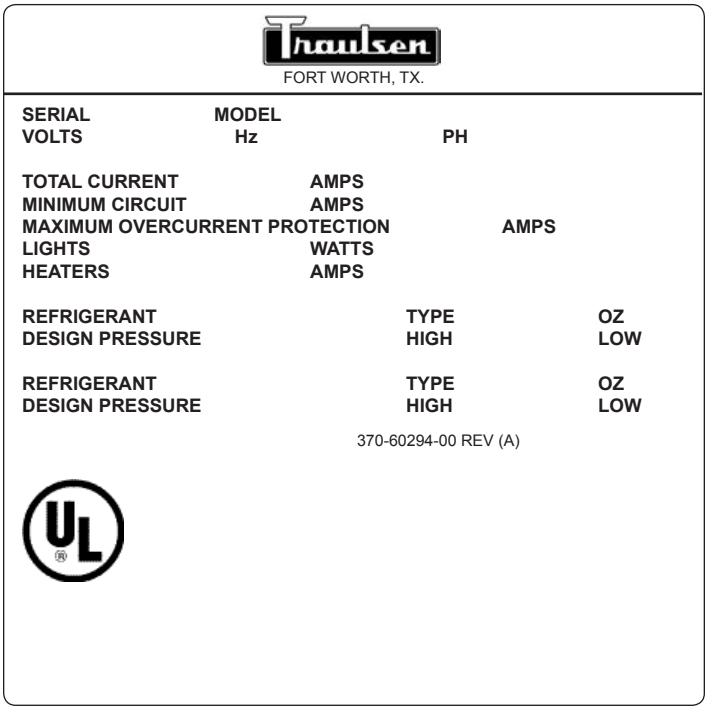
II. e - WIRING DIAGRAMS:
Refer to the wiring diagrams on pages 16 thru 18 for any service work performed on the unit. Should you require another copy, please contact Traulsen Service at (800) 825-8220, and provide the model and serial number of the unit involved.

II. f - TOOL REQUIREMENTS:
For most jobs a standard set of hand tools, a VOM with AC current tester, electrically conductive field service grounding kit, along with a temperature tester or thermometer are adequate. However in some cases the following additional tools may be required as well:

II. f - TOOL REQUIREMENTS (cont'd):

- **Refrigeration Reclaiming Equipment**
- **Acetylene Torch**
- **Nitrogen Bottle With Gauges**
- **Refrigeration Gauge Manifold**
- **Dial-a-Charge**
- **Valve Core Removal Kit**
- **Vacuum Pump**

II. g - THE SERIAL TAG:
The serial tag is a permanently affixed sticker on which is recorded vital electrical and refrigeration data about your Traulsen product, as well as the model and serial number. This tag is located inside all blast chiller models. An example is shown below.



READING THE SERIAL TAG

- Serial = The permanent ID# of your Traulsen
- Model = The model # of your Traulsen
- Volts = Voltage
- Hz = Cycle
- PH = Phase
- Total Current = Maximum amp draw
- Minimum Circuit = Minimum circuit required
- Lights = Light wattage
- Heaters = Heater amperage
- Refrigerant = Refrigerant type used
- Design Pressure = High & low side operating pressures and refrigerant charge
- Agency Labels = Designates agency listings

III. SPECIFICATIONS/OPERATING DATA/INSTALLATION

III. a - PRODUCT SPECIFICATIONS:

DIMENSIONS	TBC5	TBC13	TBC1H	TBC1HR	TBC2H	TBC2HR
Length - Overall in.	54	41	48-1/2	48-1/2	48-1/2	48-1/2
Depth - Overall in.	34-7/16	34-1/2	37-5/8	41-1/4	71-5/6	75-1/4
Height - Overall in.	34	74	90-3/8	90-3/8	90-3/8	90-3/8
Capacity 12 x 20 Pans	10	26	1 Rack	1 Rack	2 Racks	2 Racks
Capacity 18 x 26 Pans	5	13	1 Rack	1 Rack	2 Racks	2 Racks
Capacity Product Weight	100 lbs.	200 lbs.	300 lbs.	300 lbs.	600 lbs.	600 lbs.

III. b - OPERATING DATA:

DATA	TBC5	TBC13	TBC1H	TBC1HR	TBC2H	TBC2HR
Single or Dual System	Single	Dual	Dual	Dual	Dual	Dual
Remote Chill Compressor	n/a	No	Yes	Yes	Yes(2)	Yes(2)
H.P.[1]	1	1/2	1/2	1/2	1/2(2)	1/2(2)
BTU/HR[1]	4300	2820	2820	2820	2820(2)	2820(2)
H.P.[2]	n/a	1-1/4	4	4	4(2)	4(2)
BTU/HR[2]	n/a	5710	18,700	18,700	18,700(2)	18,700(2)
Refrigerant Type	R-404A	R-404A	R-404A	R-404A	R-404A	R-404A
Refrigerant Charge oz.	29	31	25	25	25(2)	25(2)
Refrigerant Charge[2]	n/a	45	See Note[3]	See Note[3]	See Note[3]	See Note[3]
Condenser RLA[1]	11.7	5.1	10.5	10.5	10.5(2)	10.5(2)
Condenser RLA[2]	n/a	9.3	See Note[3]	See Note[3]	See Note[3]	See Note[3]
Unit Voltage	115	208/115	115	115	115(2)	115(2)
Phase	1	1	1	1	1	1
Hz	60	60	60	60	60	60
Full Load Amps	13.3	13.4	14.9	14.9	14.9(2)	14.9(2)
NEMA Plug Type	5-20	14-20	Hard Wire	Hard Wire	Hard Wire	Hard Wire

1= Self-Contained Holding or Primary Compressor.
2= Blast Chilling or Secondary Compressor.
3= Varies with remote system.

III. c - REFRIGERATION SYSTEM INSTALLATION:

All Traulsen blast chillers, with the exception of model TBC5, require the use of a floor drain or floor mounted condensate evaporator for condensate removal. Refer to Section IV. h of the blast chill owner's manual for more information.

Remote refrigeration installation requirements apply only to models TBC1H/TBC1HR and TBC2H/TBC2HR. A remote condensing unit, operating on R-404A refrigerant, is required for Blast Chill operation on these models. The remote condensing unit(s) should be capable of providing 18,700 BTU/hr @ -10°F evaporator temperature and 90°F ambient.

Air-cooled and water-cooled remote condensing units are available from Traulsen as an optional accessory. Please note that these should be adequate for any installation within a 25 foot radius from the cabinet. Beyond this distance, the actual capacity of the remote condensing unit and line sizing may change depending upon the length and layout of the connecting piping from the remote condensing unit to the Blast Chiller. These utilize a 1/2" liquid and 1-1/8" suction lines. Proper specification of the remote condensing unit needed and line sizing should be defined by a qualified refrigeration engineer or technician, based on the jobsite installation needs.

The low pressure cut-out of the remote condensing unit should be adjusted to obtain an evaporator coil temperature NO LOWER THAN -15°F. If the length of the connecting piping is 40 feet or less, the condensing unit low pressure cut-out settings will be approximately 15 +/- 2 PSIG cut-out and 25+/- 3 PSIG cut-in.

For more information please contact the factory.

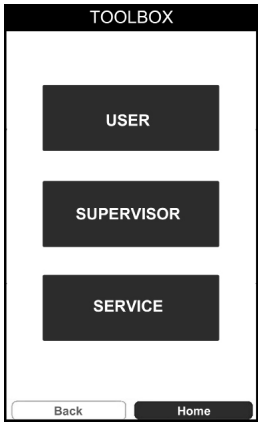
IV. SERVICING THE EPICON CONTROL

IV. a - OVERVIEW:
Traulsen's TBC Series blast chillers are equipped with the epicon microprocessor control. This is protected from damage by a surrounding heavy gauge metal bezel. It includes several diagnostic features built within the TOOLBOX's SERVICE menu. The control itself has no serviceable parts. Should you encounter a faulty or damaged control, it will need to be replaced.

IV. b - THE TOOLBOX:
The TOOLBOX can be accessed by pressing the MANUAL tab, and then the TOOLBOX icon on top of the MANUAL menu screen.

From the MANUAL menu screen press the TOOLBOX icon.

The control will now display the TOOLBOX menu. It includes three security levels.

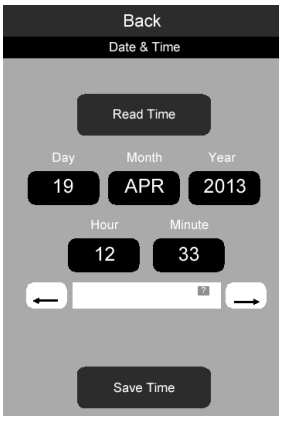


Press USER for operator level access. This provides open access allowing you to: Set the Clock, Adjust Defrost Time and Settings, Download Cycle Data, Search Chill Cycle History, and Upload Recipes to the PRODUCT menu.

Press SUPERVISOR for supervisor access. Note that this not intended for every day access and adjustments and so is password protected
Enter your access code to proceed. The factory default code is 1234. This can be changed in the SUPERVISOR level.

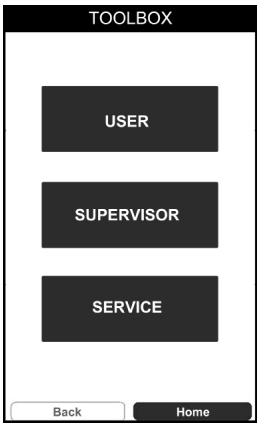
IV. c - SETTING THE CLOCK:
Begin by pressing MANUAL - TOOLBOX - USER, then press SET DATE/TIME. The display will change to the SET DATE/TIME screen.

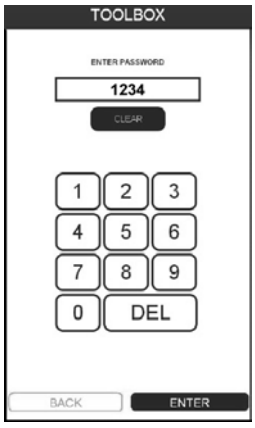
IV. c - SETTING THE CLOCK (continued):
To adjust the Date and time settings:



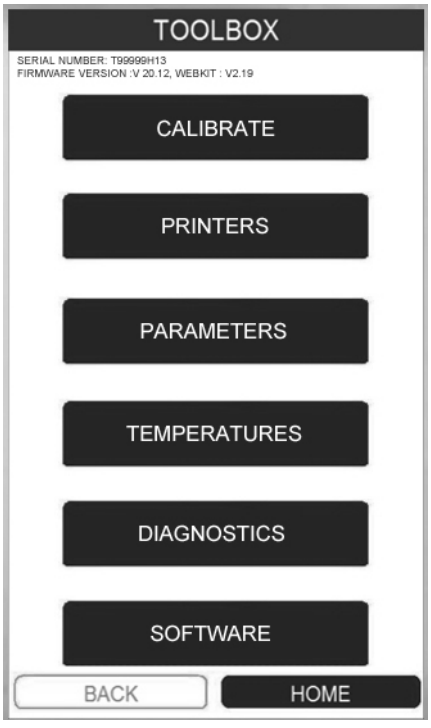
1) **Press DAY - MONTH - YEAR - HOUR - MINUTE as needed (after doing so the field will be highlighted).**
2) **Toggle the LEFT/RIGHT arrows at bottom to adjust this parameter**
3) **Proceed to the next parameter.**
4) **Press SAVE TIME to save these settings.**

IV. d - SERVICE MENU:
Press SERVICE to access the service menu. Note that this is password protected. The factory default code is 4401. Enter the access code to proceed.





The SERVICE menu will appear.

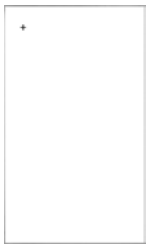


IV. SERVICING THE EPICON CONTROL (cont'd)

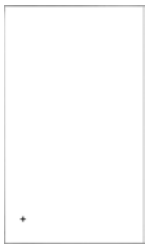
IV. e - <u>SERVICE MENU FEATURES:</u>

CALIBRATE: This features allows for calibration of the touchscreen's accuracy. Press CALIBRATE than each of the five plus symbols (+) as closely as possible to do so. Note use of a stylus is highly recommended.

Touch Point 1

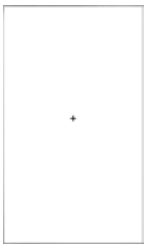


Touch Point 2



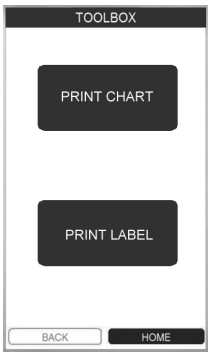
Touch Point 3

Touch Point 4



Touch Point 5

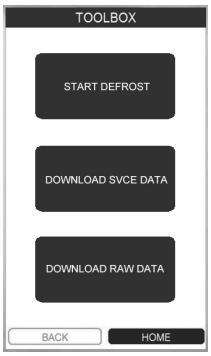
NOTE: The units are calibrated from the factory and should only be recalibrated if necessary. Exercise extreme caution when recalibrating as improper inputs while calibrating can result in difficultly navigating the control.



PRINTERS: This feature allows you to check each printer for proper operation.

Press PRINT CHART to test the record printer.

Press PRINT LABEL to test the label printer on models supplied with the optional label printer.



PARAMETERS:

Press START DEFROST to initiate an on demand defrost cycle.

Press DOWNLOAD SERVICE DATA to transfer all temperature data (as shown on the TEMPERATURE menu) through the USB port to a thumb drive.

Press DOWNLOAD RAW DATA to transfer all data in memory through the USB port to a thumb drive. NOTE: this feature requires use of special software available from Traulsen.

TEMPERATURES:

Displays key temperature sensor data. Expected values for each should be in similar to those shown below...

AMBIENT	**66°F**
CABINET	**34°F**
MAINT EVAP IN	**63°F**
MAINT EVAP CORE	**42°F**
BLAST EVAP IN	**32°F**
BLAST EVAP CORE	**37°F**
BLAST EVAP OUT	**32°F**
BLAST LIQUID LINE	**66°F**
MAINT LIQUID LINE	**66°F**

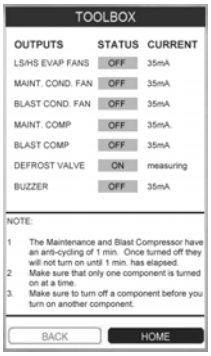
SOFTWARE: Select this feature when updating the control's operating software.

The current software versions are displayed at the top of the TOOLBOX main menu. Contact Traulsen at (800) 825-8220 to verify if you have the latest software versions.

To update the control, insert a thumb drive containing the latest software into the USB port. Note all files must be located in the root directory. Updates should be performed in the following order (if necessary)...

Update I/O Board
Update UI Board
Update HTML

Follow the instructions provided with the software update and any on screen instructions. Do not remove the thumb drive until all updates have been completed.



DIAGNOSTICS:

Press each OUTPUT one at a time in order to change test status from OFF to ON. Record the reading and then turn the OUTPUT off before proceeding to the next one.

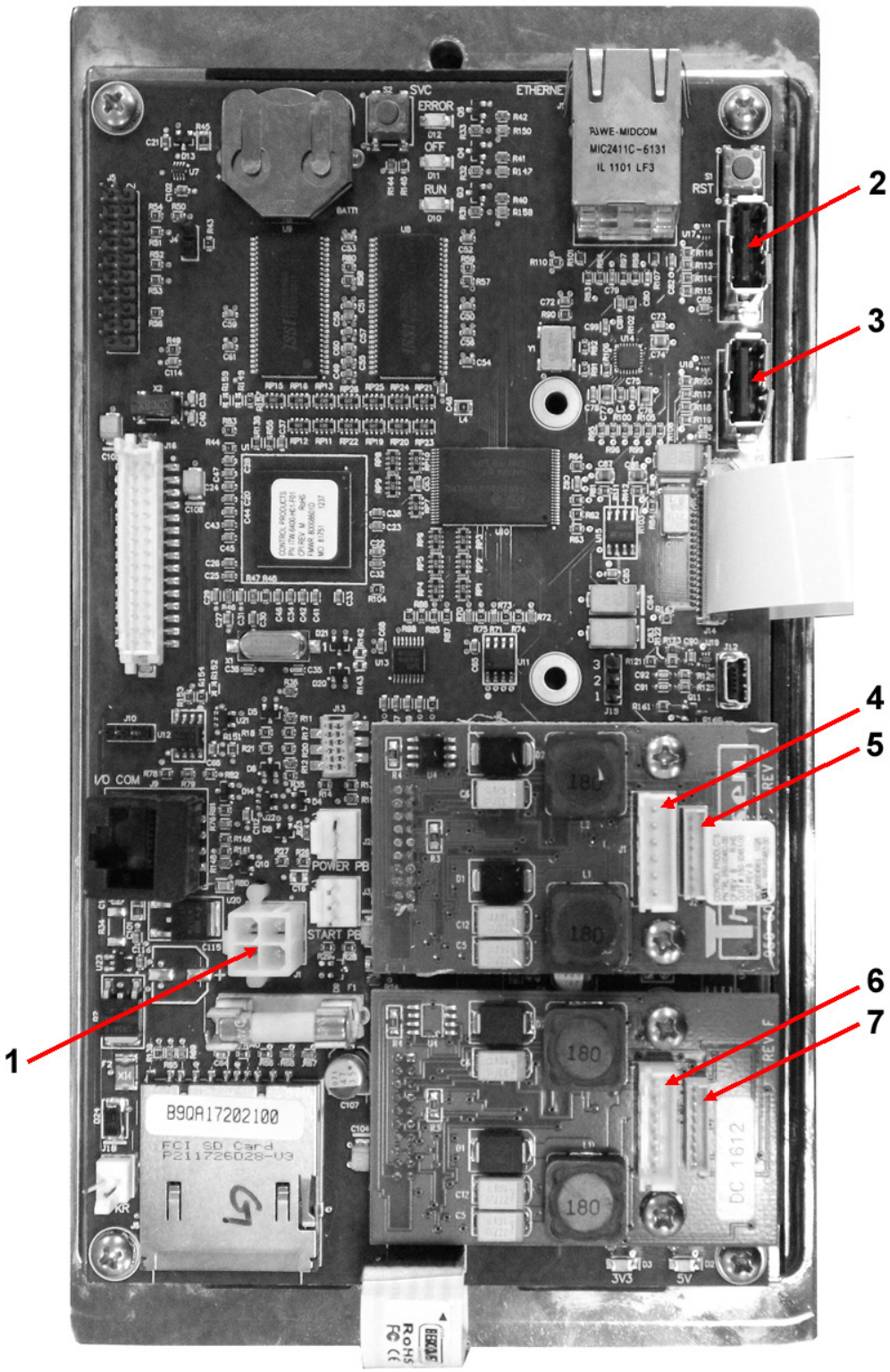
NOTE: If you do not turn each OUTPUT off before proceeding to the next one you can potentially cause damage to that component.

Normal readings for each OUTPUT should be...

LS EVAP FANS = 3.7A +/- .55A
HS EVAP FANS = 3.9A +/- .15A
MAINT COND FAN = 1.15A +/- .25A
BLAST COND FAN =
MAINT COMP = 7.5A +/- 1.5A
BLAST COMP =
DEFROST VALVE = n/a
BUZZER = n/a

NOTE: The maintenance compressor has an anti-cycling feature of 1-minute. Allow the cabinet to idle for at least 1-minute before beginning a test.

V. CONTROL ARCHITECTURE



LEGEND

1. UI Power
2. USB Port (used)
3. USB Port (unused)
4. Label Printer Power
5. Label Printer Communication
6. Paper Printer Power
7. Paper Printer Communication

VI. COMPONENT FUNCTION

Compressor	**Pumps refrigerant through refrigeration lines and components.**
Condenser Fan	**Draws air across condenser coil to aid in removing heat from the refrigerant and moves air across compressor to aid in cooling the compressor.**
Dual Pressure Control (TBC1H & TBC2H only)	**Low side monitors suction pressure at compressor. Shuts compressor OFF when low pressure setting is reached (cut-out). Allows compressor to run when pressure rises to cut-in setting. High side monitors discharge pressure at compressor. Shuts compressor OFF when high side pressure setting is reached (cut-out). Allows compressor to run when pressure returns to cut-in setting. The differential is the difference in pressure between open and closed states of the pressure switch.**
Start Capacitor	**Wired in series with the start windings to help start compressor motor.**
Run Capacitor	**Continually in circuit to help compressor motor during operation.**
Thermal Overload	**Removes power from compressor if the internal temperature of the compressor becomes too high (auto reset).**
Start Relay	**Senses current of run winding of compressor motor. Normally open contacts close when run winding draws a high amperage at start and brings the start capacitor and start windings into the circuit. As the motor reaches operating speed (less amperage through run winding), the normally open contacts open and removes the start capacitor and start windings from the circuit.**
Evaporator Fan	**Draws air from the cabinet and moves air through the evaporator coil.**
Defrost Heater	**Defrosts evaporator coils and prevents water droplets from evaporator coil from freezing before they can drain to the condensate pan. Operates only during defrost cycle.**
Air Temperature Sensor	**Monitors air temperature inside the cabinet.**
Coil Temperature Sensor	**Monitors the suction line temperature at evaporator during defrost cycle.**
Food Temperature Probe	**Monitors temperature of food product.**
Solenoid Valve	**Normally closed. When energized, allows refrigerant to flow from receiver to evaporator coil.**
Door Perimeter Heater	**Prevents condensate on door frame.**
Controller	**Performs the following functions: a) Displays all data for the current mode of operation. b) Cycles refrigeration system to maintain cabinet temperature. c) Monitors power failures.**
Power Supply Boards	**Provides DC voltage to control system.**
Relay Board	**Performs the following functions: a) Cycles fans. b) Controls outputs to heaters and compressor relays.**
Thermal Fuse	**TBC1H, TBC1HR, TBC2H and TBC2HR only. Monitors cabinet air temperature. Opens circuit to defrost heater if cabinet temperature exceeds 230°F.**

VII. SEQUENCE OF OPERATION

VII. a - REFRIGERATION SYSTEM - HOLD MODE:

1. The controller monitors the air temperature and senses a need for cooling.
   a) The relay that controls the compressor is energized.
3. The expansion valve monitors the evaporator superheat and meters the amount of refrigerant entering the evaporator.
4. The controller senses the air temperature requirements have been met.
   a) De-energizes the relay that controls the compressor.
5. Unit is cycled by controller.

VII. b - REMOTE REFRIGERATION SYSTEM (TBC1H, TBC1HR, TBC2H & TBC2HR only):

1. The controller must be in a chill or hold mode.
2. The controller monitors the air temperature and senses a need for cooling.
   a) The relay that controls the solenoid valve is energized.
      1-Solenoid valve is energized and refrigerant flows to the evaporator.
      2-Fans are operating at high speed.
3. The low pressure switch closes with pressure rise.
   a) The compressor motor is energized and refrigerant is pumped through the system.
4. The expansion valve monitors the evaporator superheat and meters the amount of refrigerant entering the evaporator.
5. The controller senses the air temperature requirements have been met.
   a) De-energizes the relay that controls the solenoid valve.
      1-Solenoid valve is de-energized and closes. Refrigerant flow to the evaporator stops.
      2-Fan operation changes to low speed.
6. Compressor continues to run. Low pressure control opens as pressure drops.
   a) Compressor motor de-energized.
7. Unit is cycled by controller.

VII. c - IDLE MODE:

1. Conditions
   a) Unit connected to correct voltage.
   b) Safety thermostat closed.
2. Door heater energized.
3. Main switch closed - controller energized.
   a) Main contactor energized, contacts close.
4. Controller displays main menu.
5. Controller maintains cabinet air temperature at hold mode temperature.

VII. d - HOLD MODE:

Product will be held automatically at chilled temperature when all active probes have reached the target temperature when in any mode. If a "BY TIME" mode is selected, the unit enters hold mode automatically after the time has expired.

VII. d - HOLD MODE (cont'd):

1. Unit is in IDLE mode.
2. Hold mode is initiated.

NOTE: When the hold mode is initiated, two timers run. One tracks the time in the hold mode and the other tracks the time since the last defrost (hold mode defrosts at a programable interval).

   a) The refrigeration system will cycle on the air temperature of the cabinet.
      1-ON at the set-point plus differential.
      2-OFF when set-point reached.
   b) The hold mode has an automatic defrost cycle. The operator can program the interval between defrost cycles to suit their operational needs.
      1-When the defrost cycle is complete and the unit returns to the hold mode, the evaporator fans will not operate until the coil temperature is below 20°F.

3. Hold mode is terminated by pressing the exit key.

NOTE: If the HOLD MODE is terminated by the operator with the defrost cycle in progress, the defrost mode will continue until completion before going into idle mode.

VII. e - BY TIME CHILL MODE:

1. Unit is in IDLE mode.
2. Chill type is selected and a cycle time is entered then start key is pressed.
3. The refrigeration system will cycle on the blasting air temperature set-point.
   a) ON at the set-point plus differential.
   b) OFF when set-point is reached.
4. If SPEED has been selected, the refrigeration system will cycle on the new blasting air temperature set-point after softchill condition is met, i.e. 70 percent of time has expired.
5. Chill mode is terminated when time expires.
   a) Buzzer sounds until muted.
6. At the end of a chill cycle the unit will enter the hold mode.
   a) If the end of the chill cycle is acknowledged by pressing the STOP/RESET key, the unit will enter the idle mode.

VII. f - CHILL OR FREEZE MODE BY TEMP:

1. Unit is in IDLE mode.
2. Chill type is selected and a target temperature is entered then start key pressed and probe selected.
3. The refrigeration system will cycle on the blasting air temperature set-point.
4. Chill mode is terminated when all the product probes reach the target chill temperature.

VII. SEQUENCE OF OPERATION (cont'd)

VII. f - CHILL OR FREEZE MODE BY TEMP (cont'd):
NOTE: Once the temperature of the probe reaches the target temperature the display will alternate with "DONE", and the buzzer will sound.

a) **At the end of the chill cycle the unit will enter idle mode.**

VII. g - BY PRODUCT CHILL OR FREEZE MODE:

1. **Unit is in IDLE mode.**
2. **Product type is selected.**
3. **The refrigeration system will cycle on the blasting air temperature set-point.**
4. **Chill mode is terminated when pre-programmed condition is met. If product is chilled using BY TEMP mode, all the product probes have reached the target chill temperature. Or, if product used BY TIME, when time expires.**

NOTE: If BY TEMP mode was programmed, once the temperature of the probe reaches the target temperature the display will alternate with "DONE", and the buzzer will sound.

a) **At the end of the chill cycle the unit will enter idle mode.**

VII. h - DEFROST MODE:

1. **The defrost mode can be entered manually from the idle mode or automatically from the hold mode.**
2. **Defrost cycle length is by set minutes or until the coil temperature reaches set-point.**
   a) **If the defrost mode was entered from the hold mode, the unit will return to the hold mode.**
3. **After either the time has expired, or evaporator temperature probes reach set-point, defrost heat turns OFF.**

NOTE: All TBC blast chillers include a hot gas defrost. Therefore the compressors will operate during defrost operation.

4. Unit waits for two minutes to allow water to drip off evaporator coils.

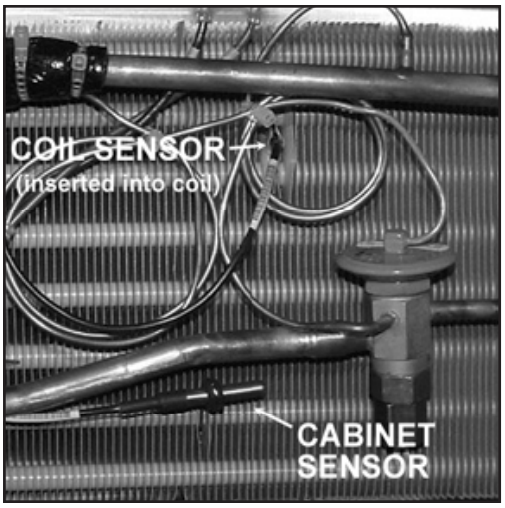
a) **Hot gas solenoid OFF.**
b) **Compressors are OFF.**
c) **Fans are OFF.**

5. **Fan Delay. After drip cycle, compressors are enabled but fans stay OFF until the evaporator coil(s) reach 20 degrees F.**

VIII. SERVICE PROCEDURES

VIII. a - TEMPERATURE AIR SENSORS:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

1. **Access the evaporator(s).**
2. **Remove the cabinet sensor from the maintenance evaporator.**
3. **Remove coil sensors from both the maintenance and blast chill evaporators.**
4. **Remove the food temperature probe receptacle from cabinet ceiling.**
5. **Disconnect the sensor/probe wiring assembly connector from the controller.**



6. **Reverse the procedure to install replacement sensors.**

VIII. b - EXPANSION VALVE:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. **Pump-down refrigeration system. Warning, after pump-down, refrigerant lines will contain pressure.**
2. **Access the expansion valve.**
3. **Detach expansion valve bulb from suction line.**
4. **Remove expansion valve from the liquid line at inlet and outlet of valve.**
5. **Install new expansion valve into inlet line and fasten bulb to suction line.**

NOTE: Make sure expansion valve bulb is attached parallel to suction line and makes good contact.

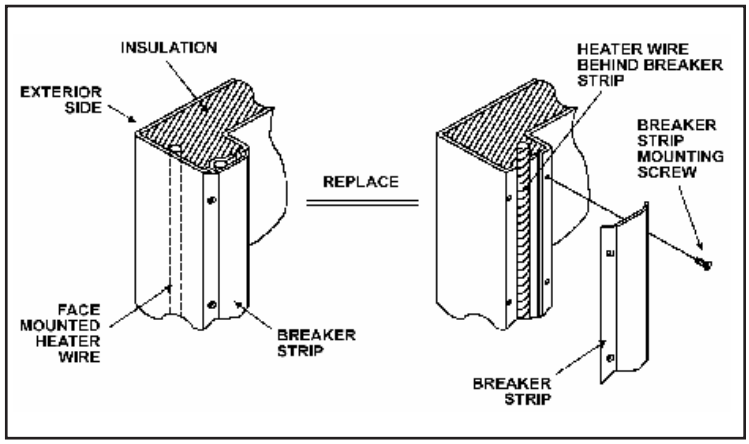
VIII. SERVICE PROCEDURES (cont'd)

VIII. b - <u>EXPANSION VALVE</u> (cont'd):

NOTE: It is recommended that the filter/drier be changed when this part is replaced.

VIII. c - <u>DOOR PERIMETER HEATERS</u> (TBC1H, TBC1HR, TBC2H and TBC2HR only):
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

1. **Remove the breaker caps from around the perimeter of the door opening.**
2. **Locate the existing wire connections in the foam insulation at the top center of the door opening under the breaker area and disconnect.**
3. **With the ends of the new wire at the top center of the door opening, place the new heater wire around the perimeter of the door opening under the breaker caps and secure in place with aluminum tape. Some replacement of insulation may be required.**
4. **Make the wire connections and push back up into the cabinet to allow for breaker caps to be reinstalled.**



5. **Reinstall the breaker caps.**

VIII. e - <u>COMPRESSOR</u>:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

NOTE: This procedure applies to all blast chill models.

1. **Access the condensing unit and evacuate the refrigeration system.**

NOTE: The use of reclaiming equipment is mandatory.

VIII. SERVICE PROCEDURES (cont'd)

VIII. d - COMPRESSOR (cont'd):

2. Disconnect lead wires and conduit at the compressor junction box.
3. Disconnect suction and discharge lines from the compressor.
4. Remove the compressor.
5. Install new compressor and connect wire leads and conduit at compressor junction box.
6. Install new filter/drier.
7. Evacuate system.
8. Charge system and put unit into operation.

VIII. e - CONDENSER FAN ASSEMBLY:

WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

NOTE: This procedure applies to all blast chill models.

1. Remove the fan guard from the top of the condenser assembly.
2. Remove the screws from the mounting clamps on the front and rear of the motor.
3. Remove the motor bracket and fan assembly from the mounting bracket.

Proceed to perform either step 4a or 4b.

4.a To replace the fan blade only, loosen the set screw that secures the fan blade to the motor shaft and remove the fan blade from the motor Install the new fan blade with the set screws between the motor and the blades.

4.b To replace the fan motor, disconnect the lead wires from the motor.

5. Reverse the procedure to install.

VIII. g - CONDENSER COIL:

WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

NOTE: This procedure applies to all blast chill models.

1. Evacuate the refrigeration system.

NOTE: The use of reclaiming equipment is mandatory.

VIII. f - CONDENSER COIL (cont'd):

2. Remove fan guard and fan shroud from condensing coil.
3. Disconnect inlet and outlet lines at the soldered connections nearest the condenser coil.
4. Remove coil from mounting plate.
5. Reverse procesure to install coil, then proceed to the next step.

NOTE: It is recommended that the filter/drier be changed when this part is replaced.

6. Evacuate the refrigeration system.

NOTE: The use of reclaiming equipment is mandatory.

7. Charge system and put unit into operation.

VIII. g - PRESSURE CONTROL:

WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. Pump-down refrigeration system. Warning, after pump-down, refrigerant lines will contain pressure.
2. Front seat the suction service valve.
3. Disconnect wire leads to pressure switch.
4. Disconnect capillary tube from compressor fitting.
5. Remove pressure control from mounting bracket.
6. Replace pressure switch and connect capillary tube to compressor fitting.
7. Put unit back into operation.

VIII. SERVICE PROCEDURES (cont'd)

VIII. h - EVAPORATOR COIL:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. **Access the refrigeration system.**
2. **Pump-down refrigeration system. Warning, after pump-down, refrigerant lines will contain pressure.**
3. **Disconnect the suction line at the soldered joint closest to the coil.**

NOTE: The use of reclaiming equipment is mandatory.

5. **Disconnect the liquid line at the expansion valve.**
6. **Remove the screws from the coil mounting bracket.**
7. **Remove the coil.**
8. **Reverse the procedure to install new coil and then proceed to the next step.**

NOTE: It is recommended that the filter/drier be changed when this part is replaced.

9. **Evacuate the system.**
10. **Charge system and put unit back into operation.**

VIII. i - FILTER/DRIER:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. **Pump-down refrigeration system. Warning, after pump-down, refrigerant lines will contain pressure.**
2. **Remove filter/drier from liquid line.**
3. **Install a new filter/drier.**
4. **Evacuate the system.**

NOTE: The use of reclaiming equipment is mandatory.

5. **Charge system and put unit back into operation.**

VIII. j - EVAPORATOR BLOWER:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

1. **Access the refrigeration system.**
2. **Remove the tray slides and pilasters from the interior (TBC5 and TBC13 only).**
3. **Remove the evaporator cover and open the evaporator fan panel.**
4. **Disconnect the wire leads at the junction box on the top of the unit and pull them into the cavity with the blower.**
5. **Remove the bolts that secure the evaporator blower from the housing panel.**
6. **Reverse the procedure to install the new evaporator blower.**

IX. k - CHECKING FOR LEAKS:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. **Access the refrigeration system.**

NOTE: Recover remaining refrigerant based on current EPA guidelines.

2. **Connect the low (BLUE) side of gauge manifold to schrader valve..**
3. **Connect refrigerant bottle to center of gauge manifold and open valve on bottle to purge hose to manifold gauge.**
4. **Open valve on low side of gauge manifold and charge system with a small amount of R-22 refrigerant (1-2 ounces).**
5. **Close bottle valve and gauge valve.**
6. **Disconnect refrigerant bottle and connect nitrogen bottle.**
7. **Set output valve on nitrogen bottle to equal the appropriate pressure, for the design rated refrigerant at 100 degrees F on the P/T chart.**

NOTE: See system data plate for design refrigerant.

8. **Open nitrogen bottle valve and gauge manifold valve (low side) and allow pressure to equalize.**
9. **Shut off both valves and disconnect the nitrogen bottle.**
10. **Using a leak detector, check for leaks at all tubing connections.**

    a) **If any leaks are detected, repair leak and re check for additional leaks.**

    b) **If no leaks are discovered, evacuate system as outlined in section "VIII. M".**

NOTE: Install a permanent high side access port for future system diagnostics.

11. **Charge the system and check for proper operation.**

IX. l - EVACUATING THE SYSTEM:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

Introduction - Refrigeration reclaiming equipment is required. Our goal in system evacuation is to remove all the non-condensables possible. No evacuation method will remove 100% of the moisture and air from within the refrigeration circuit. Because of this, guidelines and methods must be developed and adhered to ensuring only harmless amounts of contaminants remain in the system.

GUIDELINES

- **Use only a two stage vacuum pump (2 CFM or greater) and electronic micron gauge.**
- **Set output valve on nitrogen bottle to equal appropriate pressure, for the design rated refrigerant at 100 degrees F on the P/T chart.**
- **Evacuate from high and low sides of the system.**
- **No chemical additive or alcohols are to be used to "dry up" a system.**
- **Blow down of system with DRY NITROGEN prior to evacuation is acceptable and many times desirable. See "System Clean-Up."**
- **Evacuate to 200 microns of mercury.**

1. **Access the refrigeration system.**
2. **Connect low (BLUE) side of gauge manifold to schrader valve on compressor access line and high (RED) side of gauge manifold to schrader valve on filter/drier line.**

NOTE: If there is no high side access, install a permanent sweat on tap.

3. **Connect center line of gauge manifold to vacuum pump.**
4. **Turn vacuum pump on and open both sides of gauge manifold.**
5. **Pull a vacuum to 200 microns.**
6. **Charge system and check for proper operation.**

IX. m - CHARGING SYSTEM:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

1. **Access the refrigeration system.**
2. **Be sure the refrigeration system is checked for leaks and properly evacuated before charging as outlined under "LEAK CHECK" and "EVACUATING SYSTEM."**
3. **Connect high side of gauge manifold to the liquid line (make certain both valves on the gauge manifold are closed).**

NOTE: Put initial charge to system through the high side to prevent liquid refrigerant from reaching the compressor.

4. **Connect refrigerant bottle to center connection of gauge manifold (check the refrigerant bottle to confirm direction for liquid).**
5. **Purge the hose from the refrigerant tank to the manifold gauge.**
6. **Open high side of gauge manifold and allow appropriate amount of refrigerant to flow into the refrigeration system.**
7. **Disconnect the hose from the receiver valve**
8. **Reconnect power to the unit and check for proper operation and high pressure leaks.**

NOTE: Adjust charge as needed based on superheat and operating pressures. Through low side of system.

9. **Disconnect power to the unit and replace any panels or covers removed.**
10. **Reconnect power to the unit.**

IX. n - SYSTEM CLEAN UP/INTRODUCTION:
When a refrigeration system is accessed in servce some degree of system clean up is required. There are two levels of clean up:

- **BASIC - Conduct procedure as outlined under "EVACUATING SYSTEM" and incorporating a drier change, this is recommended only when system exposure is limited.**
- **MASSIVE - The use of Polyol Ester (POE) oil in systems using R-134a and R-404A, as well as in many other applications, require that every system failure be treated as a massive clean-up.**

IX. n - SYSTEM CLEAN UP/INTRODUCTION (cont'd):
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

WARNING: THIS PROCEDURE REQUIRES THE USE OF REFRIGERANTS. BE CERTAIN THE WORK AREA IS WELL VENTILATED. SAFETY GOGGLES AND GLOVES SHALL BE WORN SINCE REFRIGERANTS MAY CAUSE INJURY TO THE SKIN.

If a compressor burn-out or failure has occurred, DO NOT install a new compressor until the clean-up procedure has been completed.
If a massive moisture contamination or POE oil breakdown has occurred, remove the old compressor as outlined in section "IX. E", drain the oil and hold for replacement.

1. **Recover refrigerant based on current EPA guidelines.**
2. **Remove filter/drier and metering device.**

NOTE: In POE oil applications, it should always be assumed that the metering device is restricted aftre a contamination. These devices CAN NOT be flushed clean and reused.

3. **Flush high and low sides of refrigeration system with nitrogen to displace any trapped oil and contaminates.**
4. **Reassemble refrigeration system to include compressor, 032 size liquid line drier and new metering device.**

NOTE: The use of low flow nitrogen through the system while welding is mandatory to prevent oxidation/ carbon plating that will lead to further contamination.

NOTE: The use of a suction drier is recommended when moisture contamination is present. The suction drier should be removed within 48 hours of installtion to prevent further performance issues. Also install a new liquid line drier for maximum system clean-up.

5. **Replace new oil into the compressor.**
6. **Purge system with nitrogen for 5 minutes. Pressure should be applied to the high side and allowed to vent through the port on top of the compressor.**
7. **Evacuate system for 30 minutes.**
8. **Repeat steps 5 and 7 two additional times.**

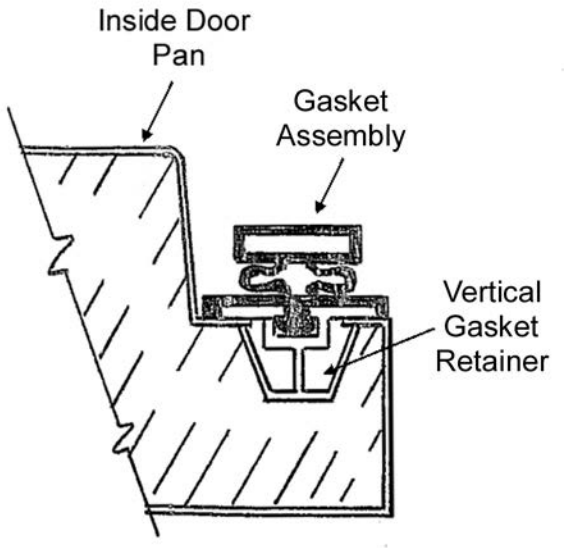
NOTE: The final vacuum should be 200 microns or less.

9. **Charge the system and replace any panels or covers removed.**
10. **Reconnect power and check for proper opertion.**

IX. o - <u>REPLACING DOOR GASKETS</u>:
WARNING: DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

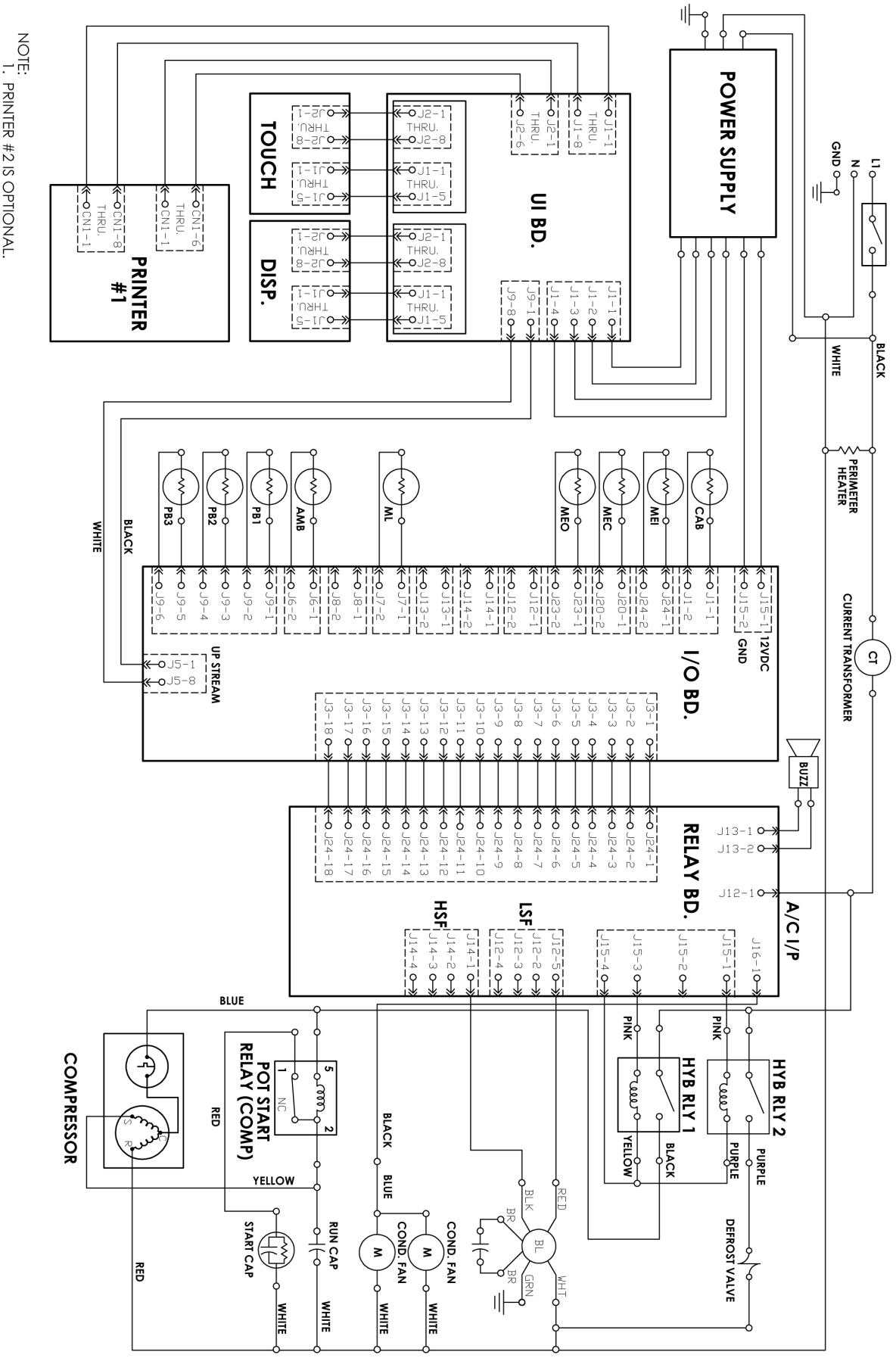
NOTE: Before attempting to install a new gasket, both the unit and the gasket itself should remain at room temperature for at least 48 hours (especially in a low temperature area).

1. **To begin removing the gasket to be replaced, grasp it firmly by one corner and pull it out.**
2. **Insert the new gasket by the four corners first by using a rubber mallet (or hammer with a block of wood).**
3. **After the corners are properly inserted, work your way towards the center from both ends by gently hitting with a mallet until the gasket is completely seated in place (see below diagram for proper gasket placement).**

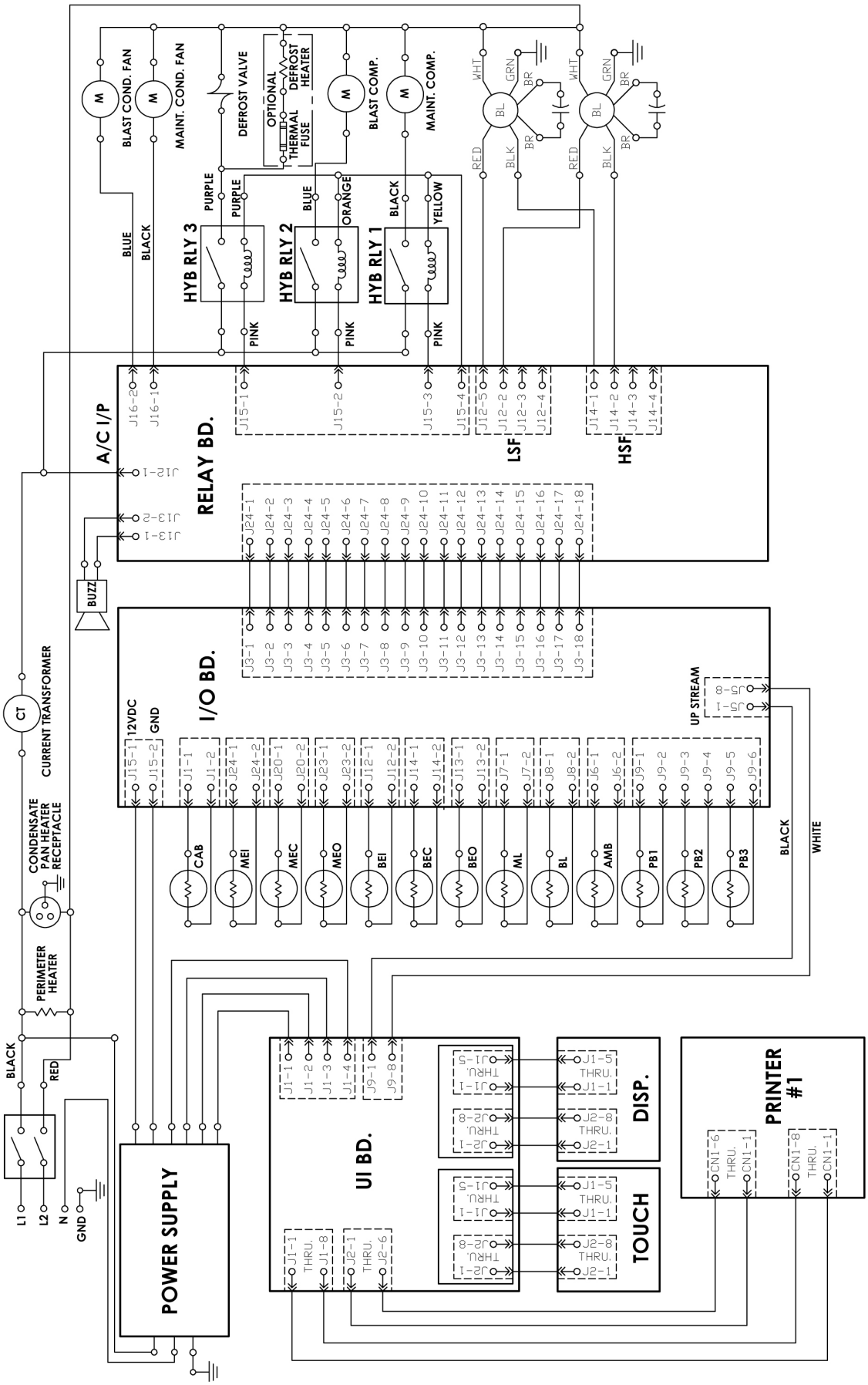


NOTE: The gasket may appear too large, but if it is installed as indicated above it will slip into place.

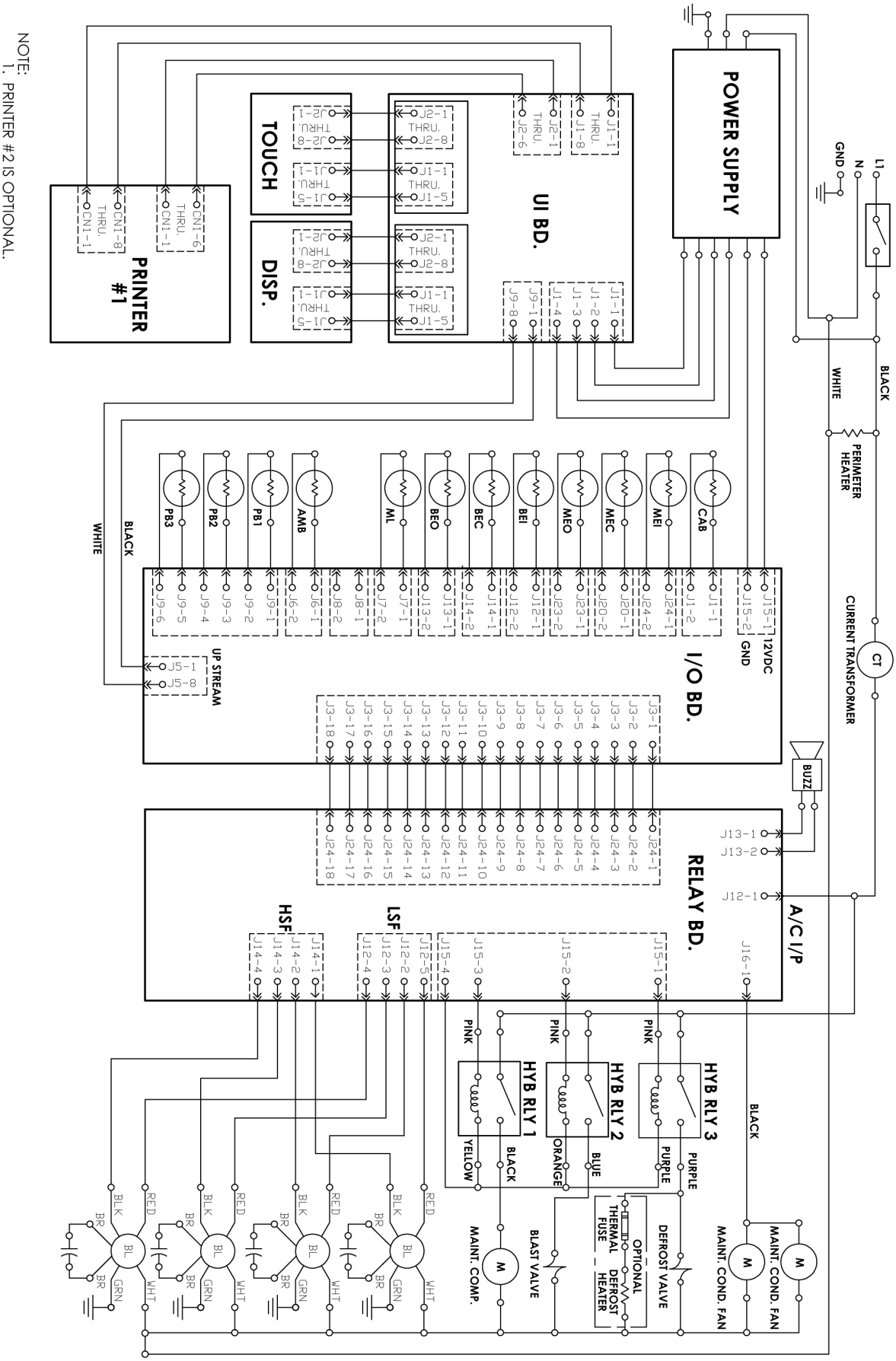
IX. WIRING DIAGRAM - MODEL TBC5



X. WIRING DIAGRAM - MODEL TBC13



XI. WIRING DIAGRAM - MODEL TBC1H/TBC1HR



XII. TROUBLESHOOTING

SYMPTOM	POTENTIAL CAUSE	SOLUTION
1. No display on control.	a. No power to unit.	Check power supply and circuit breaker.
	b. System problem.	Call for service.
2. Batch requires too much time to chill product down to temperature or time target.	a. Door not closed properly.	Close door completely.
	b. Too much product loaded.	Adjust the load to not exceed capacity of the unit.
	c. Excessive product depth.	Reduce pan load.
	d. Pan has been covered with a lid, plastic wrap or foil, and this is not in direct contact with the product.	Cover product correctly.
	e. Product loaded is of a high density.	Allow additional chilling time.
	f. Dirty condenser coil.	Clean condenser coil.
	g. Evaporator coil iced.	Allow chiller to defrost.
3. Auto mode does not appear to work when placing probe in hot product.	a. Probe not available.	Press DONE to release probe for use.
	b. Probe not placed in product.	Place probe in product.
	c. Food probe placed in product below 90° F.	Manually program cycle and select probe.
	d. Damaged or defective food probe.	Replace with new food probe.
4. Chill cycle starts with no. product present	a. Door open.	Close door.
	b. Hot product inside but no probe placed.	Press CANCEL then place probe to start cycle.
5. Unwanted product freezing.	a. Previously chilled product not removed.	Remove DONE product before starting a new chill cycle.
	b. Chill cycle By Time set for too long.	Reduce cycle time.
	c. High water content food (ex. soup).	Use DELICATE method.
6. Food drying out during chilling.	a. Food chilled uncovered.	Cover food before placing in chiller.
7. Printer not printing.	a. Printer out of paper.	Replace paper.
	b. Paper loaded incorrectly.	Replace paper with thermal side up.
	c. Feed roller tension arm open.	Close feed roller tension arm.
	d. Paper jam.	Correct paper jam.
	e. Printer malfunction.	Replace printer.
8. Condensation on exterior surface.	a. Door out of alignment or gasket issue.	Check door alignment and gasket for proper seal.
	b. Door sweep worn/out of adjustment (TBC1H).	Adjust/replace door sweep.
	c. Electric door heater malfunction.	Call for service.
9. Upon starting a chill cycle, the product temperature displayed appears cooler than expected (cooked) temperature.	a. Varied product temps within batch.	Verify actual product temp using a manual thermometer.
	b. Probe placed incorrectly.	Relocate probe.
	c. Small mass product (ex. chicken tender).	Use chill by time.
	d. Product held at room temp too long.	Verify actual product temp using a manual thermometer.
10. Nothing runs, blank controller.	a. Main circuit breaker open.	Close breaker.
	b. Fuse open on control power supply.	Replace fuse.
	c. Internal circuit breaker open.	Close internal breaker.
	d. Control power supply malfunction.	Replace control board.
	e. Main ON/OFF switch OFF.	Switch power to ON position.
11. Compressor will not run, current draw trips overload.	a. Low incoming voltage.	Remedy power supply issue.
	b. Start component malfunction.	Replace start capacitor.
	c. Compressor windings shorted.	Replace compressor.
	d. Locked rotor.	Replace rotor.
	e. Excessive head pressure.	Requires additional diagnosis to determine cause.
12. Defrost time too long (exceeds 50-minutes),	a. Coil sensor failure.	Replace sensor.
	b. Incorrect wiring.	Confirm and correct wiring.
	c. Incorrect defrost settings.	Adjust defrist settings as needed.
	d. Defrost heater malfunction.	Replace defrost heater.
13. Compressor short cycles.	a. Improper air flow over evaporator coil.	Look for ice formation.
	b. Expansion valve malfunction.	Replace TXV.
	c. Low ambient conditions.	Relocate chiller to warmer environment.
	d. Low pressure control inoperative.	Replace low pressure control.
	e. Failed air sensor.	Replace air sensor.
	f. Control malfunction.	Replace control board.
	g. I/O board malfunction.	Replace I/O board.
	h. Solenoid valve malfunction.	Replace solenoid valve.
14. Control response to touch appears slow.	a. Obsolete software.	Update latest operating system software.
	b. Calibration off.	Recalibrate touchscreen.

XII. TROUBLESHOOTING (cont'd)

SYMPTOM	POTENTIAL CAUSE	SOLUTION
15. Low suction pressure.	a. Solenoid valve restricted.	Remedy solenoid restriction.
	b. Restriction in filter/drier.	Replace filter/drier.
	c. Loss of refrigerant.	Diagnose leak and recharge system.
	d. Poor air flow.	Insure proper air flow around system.
	e. Expansion valve blocked.	Please TXV.
16. High head pressure.	a. Improper air flow across condenser.	Insure proper air flow around system.
	b. Extreme ambient conditions.	Relocate chiller to cooler environment.
	c. Refrigerant overcharge.	Correct refrigerant charge.
	d. Air in system.	Evacuate/cleanse system, then recharge.
17. Chiller will not defrost.	a. Defrost heater malfunction.	Replace defrost heater.
	b. Wired wrong or faulty connection.	Verify/correct wiring and connections.
	c. Relay contacts open.	Replace relay.
	d. Coil sensor failure.	Replace coil sensor.
	e. Control malfunction.	Replace control board.
	f. Relay board malfunction.	Replace relay board.
	g. Open fuse.	Replace fuse.
18. Printout shows wrong date and/or time.	a. Date/time settings incorrect.	Set correct date and/or time on the control.
19. Water on the floor near the blast chiller.	a. Condensate evaporator not installed.	Install condensate evaporator.
	b. Condensate evaporator not connected to power supply.	Plug in condensate evaporator.
	c. Condensate evaporator malfunction.	Replace condensate evaporator.

XIII. TBC5 REPLACEMENT PARTS LIST

Description	Part Number	Quantity
Door Assembly with Lock	200-60791-01	1
Door Hinge	282543	2
Door Gasket	341-60197-00	1
Lock Cylinder	358-13186-42	1
Lock Clip	358-13190-00	1
Lock Bolt	358-60023-00	1
Lock Key	358-28924-42	1
Tray Slide	340-60240-00	10
Front Pilaster	342-60077-00	2
Rear Pilaster	342-60078-00	2
Casters (without brake)	348-10012-00	2
Casters (with brake)	348-10012-01	2
Printer Access Panel	201-60575-00	1
Condensate Pan	701-61173-00	1
Stainless Steel Bullnose Work Top	509-50170-01	1
Louver Panel Assembly	700-60543-00	1
Cabinet Harness	333-60396-05	1
Compressor	321-60233-00	1
Condenser Coil	322-60056-00	1
Solenoid Valve	325-60001-00	1
Filter Drier	325-60103-00	1
Condenser Fan Blade	325-60135-00	1
Cabinet Air Sensor (green)	337-60405-01	2
Coil Sensor (blue)	337-60406-01	3
Liquid Line Sensor (yellow)	337-60407-01	1
Air Filter	341-60062-00	1
Thermal Expansion Valve	325-60080-31	1
Evaporator Coil	322-60053-00	1
Evaporator Fan	325-60073-01	1
Cord & Plug	333-60391-00	1
Run Capacitor	337-60006-00	1
Horn	337-60070-00	1
Hybrid Relay	337-60451-00	2
Power Supply	337-60451-00	1
Epicon Control	950-60472-00	1
Food Probe	333-60435-00	3
I/O Board	950-60461-00	1
Relay Board	950-60462-00	1
Feed Paper Button for Printer	337-60423-00	2
Spindle (for paper roll)	344-60070-00	2
Printer	950-60469-00	2

XIV. TBC13 REPLACEMENT PARTS LIST

Description	Part Number	Quantity
Door Assembly Hinged Right	200-60763-00	1
Door Assembly Hinged Left	200-60763-01	1
Door Hinge Body	344-28482-00	2
Door Hinge Cover	344-28486-00	2
Door Hinge Bracket	344-28487-00	2
Door Hinge Cam	344-28488-00	2
Door Gasket	341-60223-00	1
Lock Cylinder	358-13186-42	1
Lock Clip	358-13190-00	1
Lock Bolt	358-13189-00	1
Lock Key	358-28924-42	1
Tray Slide	340-60240-00	26
Pilaster	342-60108-00	4
Casters (kit of four with bolts)	CK1	1
Printer Access Panel	701-60717-00	1
Louver Panel Assembly	500-60543-00	1
Sensor Jumper Harness	333-60445-00	1
Power Supply Harness	333-60446-00	1
Power Harness	333-60451-00	1
I/O Hybrid Relay Harness	333-60452-00	1
Chill Compressor	321-60236-02	1
Maintenance Compressor	321-60243-12	1
Condenser Coil	322-60067-00	1
Solenoid Valve	325-60001-04	1
Filter Drier	325-60103-00	1
Condenser Fan Blade	325-60202-00	1
Condenser Fan Motor	338-60058-00	1
Cabinet Air Sensor (green)	337-60405-01	2
Coil Sensor (blue)	337-60406-01	3
Liquid Line Sensor (yellow)	337-60407-01	1
Thermal Expansion Valve (1)	325-60080-42	1
Thermal Expansion Valve (2)	325-60080-29	1
Evaporator Coil	322-60068-00	1
Evaporator Fan	325-60013-11	2
Cord & Plug	333-60454-00	1
Run Capacitor	337-60006-02	2
Horn	337-60070-00	1
Hybrid Relay	337-60360-01	3
Power Supply	337-60451-00	1
Epicon Control	950-60472-00	1
Food Probe	333-60435-00	3
I/O Board	950-60461-00	1
Relay Board	950-60462-00	1
Feed Paper Button for Printer	337-60423-00	2
Spindle (for paper roll)	344-60070-00	2

XV. TBC1H, TBC1HR, TBC2H & TBC2HR REPLACEMENT PARTS LIST

Description	Part Number	TBC1H TBC1HR Qty.	TBC2H TBC2HR Qty.
Door Assembly Hinged Left	200-60802-00	1/2	1/2
Door Hinge Body	344-28482-00	3/6	3/6
Door Hinge Cover	344-28486-00	3/6	3/6
Door Hinge Bracket	344-28487-00	3/6	3/6
Door Hinge Cam	344-28488-00	3/6	3/6
Door Gasket	341-60225-00	1/2	1/2
Lock Cylinder	358-13186-42	1/2	1/2
Lock Clip	358-13190-00	1/2	1/2
Lock Bolt	358-13189-00	1/2	1/2
Lock Key	358-28924-42	1/2	1/2
Ramp	501-61449-00	1/2	1/2
Printer Access Panel	701-60717-00	1	1
Louver Panel Assembly	500-60138-05	1/2	1/2
Sensor Jumper Harness	333-60445-00	1	2
Power Supply Harness	333-60446-00	1	2
Power Harness	333-60451-00	1	2
I/O Hybrid Relay Harness	333-60452-00	1	2
Maintenance Compressor	321-60236-00	1	2
Condenser Coil	325-60122-00	1	2
Solenoid Valve (1)	325-60001-00	1	2
Solenoid Valve (2)	325-60001-01	1	2
Filter Drier	325-60103-00	1	2
Condenser Fan Blade	325-60088-00	1	2
Condenser Fan Motor	32560214-00	2	4
Cabinet Air Sensor (green)	337-60405-01	2	4
Coil Sensor (blue)	337-60406-01	3	6
Liquid Line Sensor (yellow)	337-60407-01	1	2
Thermal Expansion Valve (1)	325-60080-42	1	2
Thermal Expansion Valve (2)	325-60080-29	1	2
Evaporator Coil	322-60068-00	2	4
Evaporator Fan	325-60218-00	1	2
Run Capacitor	337-60006-02	2	4
Horn	337-60070-00	1	1
Hybrid Relay	337-60360-01	3	6
Power Supply	337-60451-00	1	2
Epicon Control	950-60472-00	1	1
Food Probe	333-60435-00	3	6
I/O Board	950-60461-00	1	1
Relay Board	950-60462-00	1	1
Feed Paper Button for Printer	337-60423-00	2	2
Spindle (for paper roll)	344-60070-00	2	2
Printer	950-60469-00	2	2

Quality Refrigeration

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