

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



DH5T-3BDSTAR Shown

Supplier Name: **MARSHALL AIR SYSTEMS, INC.**
Address: 419 Peachtree Drive South
Charlotte, NC 28217

Model #'s: _____
Serial #'s: _____
Date Received: _____
Date Installed: _____
Telephone #: 704-525-6230
Fax #: 704-525-6229
Service Referral #: 800-722-3474
Local Service Name: _____
Local Service #: _____

PRODUCT DESCRIPTION

The heated holding cabinet features Marshall's own ThermoGlo™ heating technology. Heat radiates from every square inch of the upper and lower flat plate heating surfaces. This eliminates the need to clean intricate calrod, wire and reflector assemblies.

The DH5T Series Heated Holding Unit can accommodate up to eight 1/3 2 1/2" deep pans. The DH5C Series can accommodate up to six 1/3 2 1/2" deep pans.

It also features two time/temperature controllers. These integrated time/temperature controllers independently control the top and bottom temperatures and also have one timer channel for each 1/3 pan in the unit for full control flexibility and maximum product integrity.

These Heated Holding Units offer the latest in technological design which gives you the most favorable holding characteristics in a system that is simple to work with and operate.

GENERAL SPECIFICATIONS

Models: DH5T-3BDSTAR, DH5T-3BHAR, DH5C-3BDSTAR, DH5C-3BHAR
Height: 6.250"
Width: DH5T Series - 61.938"
DH5C Series - 48.000"
Depth: 16.000"
Weight: DH5T Series - 70 lbs.
DH5C Series - 60 lbs.
of Deck: 1
Pans per Deck: 8 (DH5T SERIES)
6 (DH5C SERIES)
Electrical: DH5T-3BDSTAR, DH5T-3BHAR - 120V, 12A
DH5C-3BDSTAR, DH5C-3BHAR - 120V, 9A
Cord: 7 FT, w/ NEMA 5-15 plug
Approvals: NSF, ETL/CETL
Patent Pending

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER
FLAMMABLE VAPORS OR LIQUIDS IN THE
VICINITY OF THIS OR ANY OTHER APPLIANCE

AVERTISSEMENT

Ne pas entreposer ni utiliser de l'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil, ni de tout autre appareil.

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

AVERTISSEMENT: Une installation, un ajustement, une altération, un service ou un entretien non conforme aux normes peut causer des dommages à la propriété, des blessures ou la mort. Lisez attentivement les directives d'installation et d'opération et d'entretien avant de faire l'installation ou l'entretien de cet équipement

KEEP THIS MANUAL IN A SAFE PLACE AND RETAIN FOR FUTURE USE.

Cabinet area must be kept free of combustible materials and the flow of ventilation air must not be obstructed. Operating personnel must not perform any maintenance or repair functions. Contact your Qualified Service Company.

Clean unit and base with a damp cloth/rag and a mild cleaner.

DO NOT USE A GREEN SCOTCH BRITE PAD OR ANY OTHER ABRASIVE CLEANING PAD. THE BLUE SCOTCH BRITE (NO SCRATCH) IS SAFE TO USE.

DO NOT USE CAUSTIC CLEANING SOLUTIONS SUCH AS OVEN CLEANER. USE ONLY MILD, NON-ABRASIVE CLEANER.

DO NOT IMMERSE IN WATER!

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



TABLE OF CONTENTS

PRE-INSTALLATION.....	1
FINAL INSTALLATION.....	1
CONTROL USER INTERFACE.....	1
OPERATION.....	1 - 3
PROGRAMMING – HOLDING TIME.....	3
PROGRAMMING - GENERAL SETTINGS.....	3 - 4
USB CONFIGURATION DOWNLOAD.....	4 - 5
DAILY MAINTENANCE.....	5
MONTHLY MAINTENANCE.....	5
TROUBLESHOOTING.....	6 - 8
REPLACEMENT PARTS.....	9 - 12

ILLUSTRATIONS

OVERALL DIMENSIONS DH5T SERIES.....	FIGURE 1
OVERALL DIMENSIONS DH5C SERIES.....	FIGURE 1A
REPLACEMENT PARTS DH5T SERIES.....	FIGURE 2
REPLACEMENT PARTS DH5C SERIES.....	FIGURE 2A
INSTRUCTIONS MOUNTING KIT 185665.....	185615
INSTRUCTIONS WRAP SHELF KIT 185666.....	185616
INSTRUCTIONS MOUNTING KIT 185667.....	185617

SCHEMATICS

WIRING SCHEMATIC, DH5T-3BDCHAR 120V 12A.....	185699
WIRING SCHEMATIC, DH5T-3BHAR 120V 12A.....	185609
WIRING SCHEMATIC, DH5C-3BDCHAR 120V 9A.....	186186
WIRING SCHEMATIC, DH5C-3BHAR 120V 9A.....	186408

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



PRE-INSTALLATION

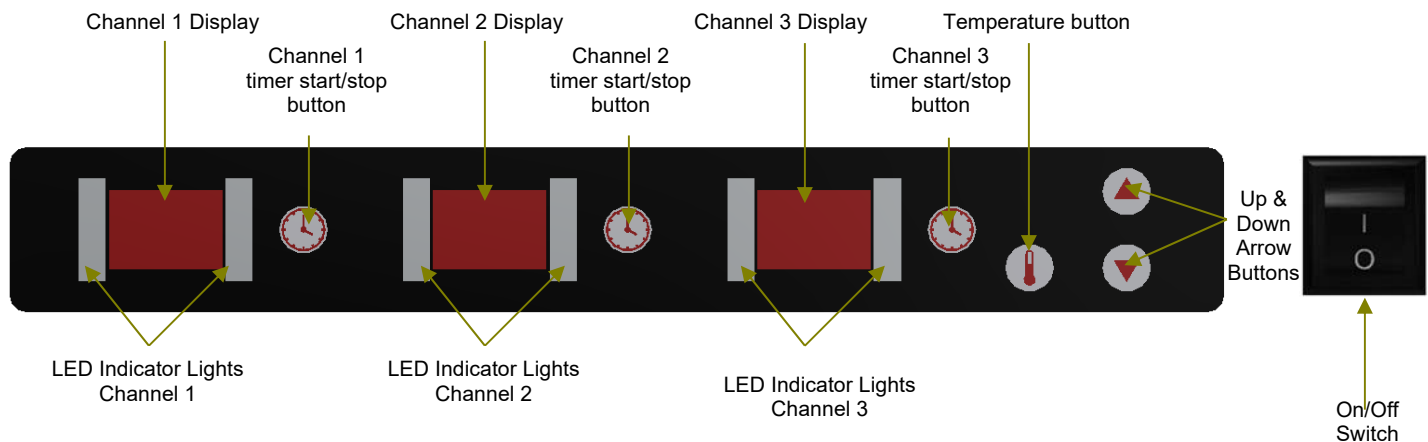
1. The heated holding cabinet is packaged to minimize the risk of shipping damage. Immediately upon receipt, make certain to inspect the unit(s) for damage. **FILE ALL CLAIMS WITH THE FREIGHT CARRIER.**
2. Unpack and inspect the nugget cabinet. **IF ANY CONCEALED DAMAGE, FILE ALL CLAIMS WITH THE FREIGHT CARRIER.**

FINAL INSTALLATION

1. Unpack unit and remove all protective paper or plastic covering from metal parts.
2. Place holding unit on stable base.
3. Plug unit into receptacle rated according to model being used. Refer to the General Specifications on the front page of the manual to find out amp load and plug type of your model.
4. Installation shall comply with the latest version of the National Electrical Code, NFPA 70.

CONTROL USER INTERFACE

Each deck in the unit is controlled by an independent time/temperature controller. The following picture is the user interface layout of the controller(s) for a three-pan wide cabinet. The number of timer channels will differ depending on the model. Refer to the general specifications on the front page of this manual to find out the number of pans (timer channels) for your unit.



If the holding cabinet is a pass thru unit with controllers on both sides (front and back), each back-side controller (slave) is linked to its associated front controller (master) to allow a second user to operate the unit simultaneously from the back side. Note that all units, pass thru and non-pass thru only have ON/OFF switches on the front.

OPERATION:

CONTROLLER POWER UP:

1. Turn on the power switch of deck(s) to be used. Upon power up, the controller will briefly show the software version and then go to preheat mode and the display will show "PHt"

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



PREHEAT:

1. The controller will stay in preheat mode ("PHT") for the entire preheat period (preheat time parameter) even though both heaters (top and bottom) have reached set points before the end of that period. If the controller is inadvertently turned OFF and back ON, the preheat period can be bypassed by a 3 second press of the down arrow button only if both heaters are within the allowed differential temperature set points (preheat bypass temperature parameter).
2. After preheat, the controller goes into idle mode where the displays either show "---" or a product code name (Example: "Chn") if assigned. At this time, any timer can be started.

HOLDING TIME CYCLES:

1. To start a cycle, press a timer start/stop button. The LED bars for that timer channel will then light steady green to let the user know that it is now active. A press of the down arrow button will show the remaining holding time of any active channels for three seconds. If no product code has been assigned to the channel, the display will show the holding time value in minutes and start countdown.
2. When the timer reaches the pre-alert value, the display will also start flashing "drP" for DROP, the LED bars will start flashing and a beeping will start. The user then has to acknowledge the pre-alert by a press of the timer start/stop button. The display will then flash the remaining time for the rest of the cycle, the LED bars will go back to steady and the beeping will stop.
3. When the timer reaches the "000" value, the display will flash "000", the LED bars will flash red and the beeping will start until the user acknowledges the end of the cycle by pressing the timer start/stop button. The timer will then go back to idle mode, the led bars will turn OFF and the beeping will stop.
4. **This step only applicable to controls that are set to interdependent group configuration. See Group Configuration into "Programming – General Settings" for more information.** If a subsequent timer cycle is started while previous timer cycle(s) are still active, the LED bars will turn steady red instead of green to indicate that the associated pan is not yet to be used. Only when all previously started linked cycles have been elapsed or cancelled that the LED bars will change to green to let the user know that the associated pan can now be used.
5. Any holding cycle can be cancelled at any time by a **3 second press** of the timer start/stop button.
6. If at any time during normal operation, one heater's temperature is falling or rising out of the allowed differential from set point (ready mode differential parameter), the displays will alternate between current mode and "LO" or "HI" to alert the user that the heater's temperature is too low or too high. This should remain until the heaters are back within the allowed temperature differential.

CURRENT TEMPERATURES DISPLAY:

1. To view the heaters current temperature, press and hold the temperature button for 3 seconds. The display will then alternate between "toP" for top heater and its current temperature value.
2. To view the bottom heater current temperature, press the temperature button again. The display will then alternate between "bot" for bottom heater and its current temperature value.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



3. A press of the temperature button will cycle between top and bottom current temperatures.
4. To exit temperature view mode and return to previous mode, press and hold the temperature button.

DAY PART CONFIGURATION:

This functionality allows the user to quickly switch between four sets of configurations to hold different food product or to better accommodate the restaurant's daily need.

To display the active day part configuration, cancel all timers so all displays are in idle mode "----" then press and release the up arrow button. The displays will show the active configuration for a few seconds and return to the previous mode. To switch from one configuration to the other, cancel all timers so all displays are in idle mode "----" then press and hold the up arrow button for 3 seconds. The displays will briefly show the current configuration followed by the newly active configuration and then goes back to normal operation.

PROGRAMMING - HOLDING TIME:

1. To change a timer channel holding time value, the unit needs to be in preheat mode "PHT" or in idle mode "----".
2. Press and hold for 3 seconds the timer start/stop button for the channel to be changed. The display will then flash the current setting in minutes.
3. Use the up/down arrow buttons to change to new setting.
4. Press and hold start/stop button for 3 seconds to save the new setting and go back to idle mode.
5. If necessary, repeat for other channels.

PROGRAMMING – GENERAL SETTINGS:

NOTE: Programming mode can only be access from the front controller (master) on a pass thru unit with controllers on both sides. Controller must be in preheat "PHT" mode or idle mode where no timers are active.

To access programming mode, press and hold the up and down arrow button for 5 seconds. To save changes and exit programming mode, press and hold temperature button for 3 seconds.

Once in programming mode, the display will alternate between the parameter/functionality display codes and its current value (if applicable). Press the temperature button to cycle through the parameters/functionalities and use the up and down arrow buttons to change the parameter value. For channel specific parameters (parameters 4, 5 and 6) select channel to be changed by pressing the associated timer button first, then the up/down arrow buttons to edit value. Here is the list of the user programmable parameters and functionalities with their display code:

1. "CF" Configuration download functionality. See "USB CONFIGURATION DOWNLOAD" section for more details.
2. "dPn" Indicates which set of day part values will be edited. Some models have up to 4 day parts available (dP1, dP2, dP3 and dP4).
3. "grP" Group configuration.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



- “ 0”: Indicates that all channels on this controller are set to be independent.
 - “ 1”: Indicated that all channels on this controller are interdependent. In this setting, the user can keep track of which pan was inserted first by the state of the channels LED light bars. The channel that was started first will have the green LED light bars while any subsequent timers that are started will have red LED light bars. This lets the user know to use the pan associated with the green LED light bars first until timer is expired or cancelled. The LED light bars of the next channel in line will then turn green and so on.
 - “ 2”: This group setting allows any two adjacent timer channels to be paired. The user can then keep track of the oldest product in a case where two pans hold the same product. See pairing parameter (“Par”) below for more setting details.
4. “Par” In the case where grouping (“grP”) is set to “2”, for channel pairing, this parameter is used to define any pairing between two channels. Note that both paired channels need to be setup properly for unit to operate correctly. First select channel using timer button then choose between “no”, “uP”, “rt”, “dn” or “LF”. Not all options are available for some units.
 5. Product Name: The user can assign a product name to each channel. If activated, this will display the product name instead of the holding time during operation (see next parameter). First, select channel to be edited, then use up/down arrow buttons to change selected character. Subsequent presses of the same timer button will cycle through the characters.
 6. “Prd” This parameter defines which channel(s) will have the product name feature activated. First select channel to be edited the choose between “yes” to display product name or “no” to display holding time. **Note that the user can press the down arrow button during normal operational to display remaining holding time of any active timer channels for 3 seconds.**
 7. “ALT” Drop time expressed as a percentage of the holding time
 8. “CnC” Timer cancel mode
 - “ 1”: Single press of channel button
 - “ 2”: Double press of channel button
 - “HLd”: Press and hold of channel button
 9. “toP” Top heater temperature set point (in degree Fahrenheit or Celsius)
 10. “bot” Bottom heater temperature set point (in degree Fahrenheit or Celsius)
 11. “PHt” Preheat time (in minutes)
 12. “bPS” Preheat bypass temperature differential (in degree Fahrenheit or Celsius).

USB CONFIGURATION DOWNLOAD: (ONLY APPLICABLE FOR MODELS WITH USB PORTS)

1. To download a new configuration, loosen the USB port cover screws using a Phillips head screwdriver (see figure 1 for USB port location).
2. Insert USB flash drive with a valid file (provided by Marshall Air systems) into port.
3. Access the " CF" parameter in programming mode as explained in the programming (user level) section.
4. Once the display shows " CF", press the down arrow button. If the controller recognized a valid file through the gateway USB port, the display would show "dLd" to let the user know that it is ready to download the new configuration file. If the controller cannot recognize a valid file, the display will show "Err" to let the user know that a file error occurred. The display will keep showing "Err" until a valid file is recognized, or the user presses the temperature button to go back to parameter code display " CF".

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



5. To start the new configuration download when the display shows 'dLd", press the down arrow button again. The display will start flashing "dLd". When the download is complete, the display will show "Cpt" for complete. The user then acknowledges the download completion by pressing the down arrow button once more to go back to parameter code display " CF". If an error occurred during download, the display would show "Err" until a valid file is recognized, or the user presses the temperature button to go back to parameter code display " CF".
6. If the unit has more than one deck, repeat steps 3, 4 and 5 for all other decks.

DAILY MAINTENANCE

1. Turn off the unit and allow it to cool for 20 minutes.
2. Pans and/or pan covers should be removed, washed in mild multi-purpose detergent, rinsed and sanitized.
3. Clean unit and base with a damp cloth/rag and a mild cleaner.

DO NOT USE A GREEN SCOTCH BRITE PAD OR ANY OTHER ABRASIVE CLEANING PAD. THE BLUE SCOTCH BRITE (NO SCRATCH) IS SAFE TO USE. DO NOT USE CAUSTIC CLEANING SOLUTIONS SUCH AS OVEN CLEANER. USE ONLY MILD, NON-ABRASIVE CLEANER.

DO NOT IMMERSE IN WATER!

4. Allow sufficient drying time before attempting to use.

MONTHLY MAINTENANCE

1. Follow the daily schedule; there are no adjustments.
2. Inspect condition of cord/plug. If damaged, have it replaced.
3. Inspect the condition of the control overlay. If damaged, have it replaced.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



TROUBLESHOOTING CHART

Before trouble shooting is started: check unit is plugged in, check for tripped circuit breaker and check that power switch on.

**** DISASSEMBLING HEATER VOIDS WARRANTY ****

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. CONTROL DISPLAYS "PHt"	A. NORMAL OPERATION CABINET HAS NOT BEEN ON FOR 20 MIN B. INADVERTANT POWER DISRUPTION IF SWITCH TURNED OFF BY ACCIDENT, POWER DISRUPTION BY THUNDERSTORM ETC.	A. WAIT 20 MINUTES B. PRESS AND HOLD DOWN ARROW FOR 3 SECONDS TO CLEAR "PHt" CYCLE
2. UNIT WILL NOT TURN ON	A. UNIT UNPLUGGED B. IS CONTROLLER ON/OFF SWITCH "ON" C. OUTLET HAS NO POWER D. CORD DEFECTIVE E. DOES POWER SUPPLY BOARD HAVE 120V INCOMING F. DOES POWER SUPPLY BOARD HAVE 8.5 VDC OUTGOING TO CONTROLLER G. BAD CONTROLLER	A. PLUG IN UNIT B. TURN SWITCH ON C. CHECK CIRCUIT BREAKER D. REPLACE DEFECTIVE CORD E. REPLACE SWITCH F. REPLACE POWER SUPPLY BOARD G. REPLACE CONTROLLER
3. UNIT NOT HEATING	A. HEATER IS TURNED "OFF" B. WIRES NOT PLUGGED INTO BACK OF CONTROLLER C. NO VOLTAGE TO DC SIDE OF SOLID-STATE RELAY	A. SEE "PROGRAMMING USER LEVEL" SECTION TO TURN HEATER ON B. PLUG WIRES INTO CONTROLLER C. LOOSE WIRES, REPLACE CONTROLLER

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



PROBLEM	POSSIBLE CAUSE	SOLUTION
3. UNIT NOT HEATING	<p>D. SOLID STATE RELAY HAS DC VOLTAGE, NOT ALLOWING POWER TO PASS THROUGH</p> <p>E. HEATING BLANKET WIRES HAVE POWER NOT HEATING</p>	<p>D. REPLACE SOLID STATE RELAY</p> <p>E. LOOSE WIRES, REPLACE HEATING BLANKET</p>
4. LOW PRODUCT TEMPERATURE	<p>A. TEMPERATURE SET POINTS ARE TOO LOW</p> <p>B. EXCESSIVE AIR DRAFT(S)</p>	<p>A. ADJUST TO HIGHER TEMPERATURE SET POINT (SEE PROGRAMMING SECTION)</p> <p>B. SHIELD DRAFT(S)</p>
5. HIGH PRODUCT TEMPERATURE	<p>A. TEMPERATURE SET POINTS ARE TO HIGH</p>	<p>A. ADJUST TO LOWER TEMPERATURE SET POINT (SEE PROGRAMMING SECTION)</p>
6. UNIT FLASHES "+Pr" "LO" (TEMPERATURE LOW)	<p>A. EXCESSIVE AIR DRAFT(S)</p> <p>B. LOOSE WIRE IN ELECTRICAL CABINET</p> <p>C. BAD TEMPERATURE SENSOR</p> <p>D. BAD SOLID-STATE RELAY</p> <p>E. BAD HEATING BLANKET</p>	<p>A. SHIELD DRAFT(S)</p> <p>B. CHECK WIRING</p> <p>C. REPLACE SENSOR</p> <p>D. REPLACE SOLID STATE RELAY</p> <p>E. REPLACE HEATING BLANKET</p>
7. UNIT FLASHES "+Pr" "HI" (TEMPERATURE HIGH)	<p>A. BAD SOLID-STATE RELAY</p> <p>B. BAD TEMPERATURE SENSOR</p> <p>C. BAD CONTROLLER</p>	<p>A. REPLACE SOLID STATE RELAY</p> <p>B. REPLACE TEMPERATURE SENSOR</p> <p>C. REPLACE CONTROLLER</p>
8. ERROR CODE: "OPN" "UP" OR "LO" "OPEN TEMPERATURE SENSOR" "uP" UPPER DECK OR "LO" LOWER DECK	<p>A. TEMPERATURE SENSOR WIRES BECAME DISCONNECTED</p> <p>B. BAD SENSOR</p> <p>C. BAD CONTROLLER</p>	<p>A. RECONNECT TEMPERATURE SENSOR WIRES</p> <p>B. REPLACE SENSOR</p> <p>C. REPLACE CONTROLLER</p>

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



PROBLEM	POSSIBLE CAUSE	SOLUTION
9. ERROR CODE “SHT” “uP” OR “LO” “SHORTED TEMPERATURE SENSOR” “uP” UPPER DECK OR “LO” LOWER DECK	A. TEMPERATURE WIRES ARE SHORTED B. BAD SENSOR C. BAD CONTROLLER	A. CHECK WIRES B. REPLACE SENSOR C. REPLACE CONTROLLER
10. TIMER COLOR LEDS NOT ILLUMINATING	A. BAD CONTROLLER	A. REPLACE CONTROLLER
11. ERROR “dft” ON POWER UP	A. INTERNAL MEMORY DAMAGED	A. REPLACE CONTROLLER
12. CABINET FAN NOT WORKING	A. NO VOLTAGE TO FAN B. BAD FAN	A. CHECK WIRING B. REPLACE FAN

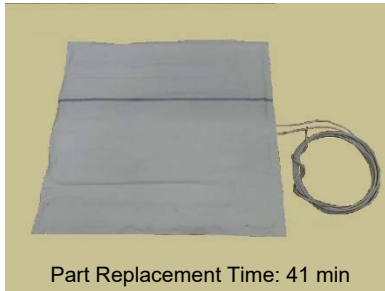
****NOTE:** When replacing sensor, a special heat sink sealant will be present when removing failed sensor. Applying new sealant is not required; however, be sure to utilize existing sealant when mounting new sensor.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT



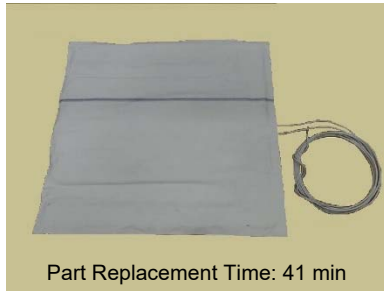
REPLACEMENT PARTS



Part Replacement Time: 41 min

504323 - Blanket, Heater 120V
For Models DH5T-3BDSHAR, DH5T-3BHAR

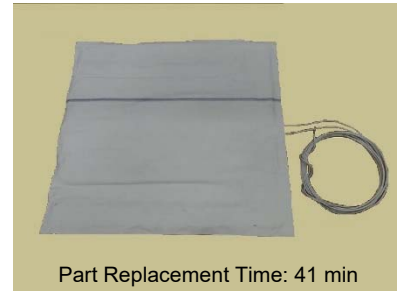
These heating blankets are used in the bottom heaters of each deck. A defective blanket could cause non-heating of the associated deck bottom heater and therefore an undesired change in the food product quality.



Part Replacement Time: 41 min

504324 - Blanket, Heater 120V
For Models DH5T-3BDSHAR, DH5T-3BHAR

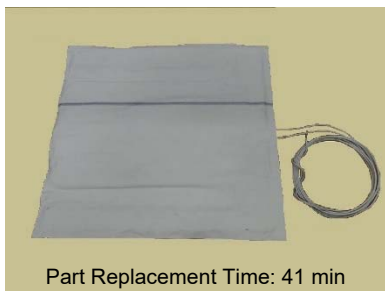
These heating blankets are used in the top heaters of each deck. A defective blanket could cause non-heating of the associated deck top heater and therefore an undesired change in the food product quality.



Part Replacement Time: 41 min

504293 - Blanket, Heater 120V
For Model DH5C-3BDSHAR, DH5C-3BHAR

These heating blankets are used in the bottom heaters of each deck. A defective blanket could cause non-heating of the associated deck bottom heater and therefore an undesired change in the food product quality.



Part Replacement Time: 41 min

504289 - Blanket, Heater 120V
For Model DH5C-3BDSHAR, DH5C-3BHAR

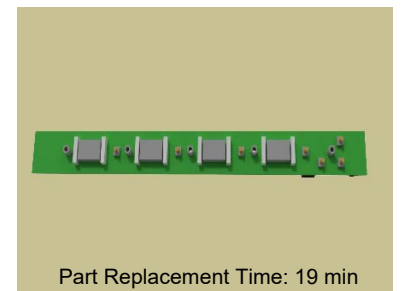
These heating blankets are used in the top heaters of each deck. A defective blanket could cause non-heating of the associated deck top heater and therefore an undesired change in the food product quality.



Part Replacement Time: 6 min

502080 - Connector, Strain Relief
All Models

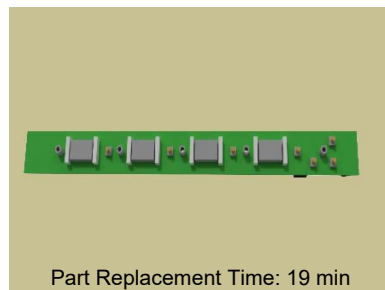
Strain relief used with main power cord [504345](#) and should be replaced if missing or damaged.



Part Replacement Time: 19 min

185627 – Control, Front Left
For Model DH5T-3BDSHAR

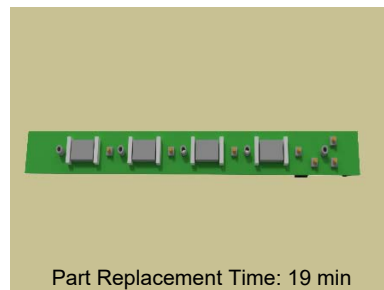
Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: 19 min

185627B – Control, Back (Louvres Side)
For Model DH5T-3BDSHAR

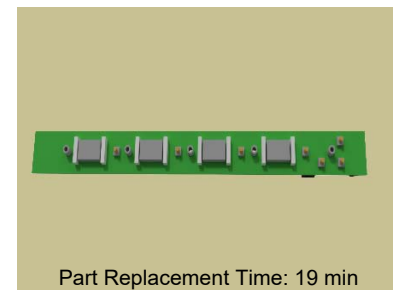
Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: 19 min

185628 – Control, Front Right
For Model DH5T-3BDSHAR

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: 19 min

185628B – Control, Back (Non-Louvres)
For Model DH5T-3BDSHAR

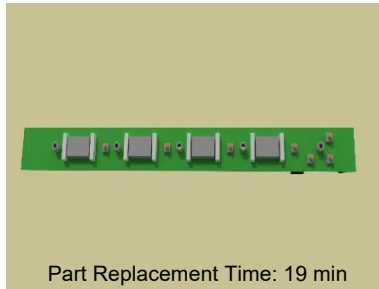
Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT

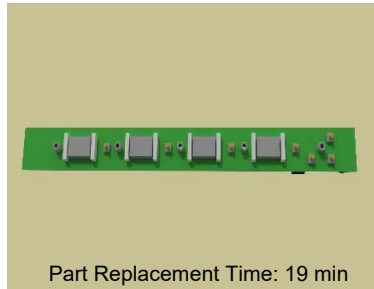


REPLACEMENT PARTS



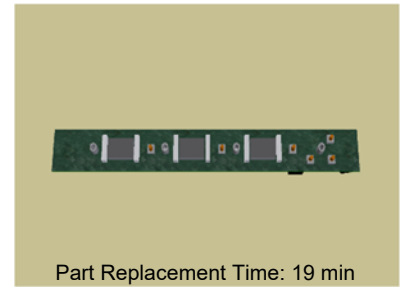
Part Replacement Time: 19 min
**186457 – Control, Front Left
 For Model DH5T-3BHAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



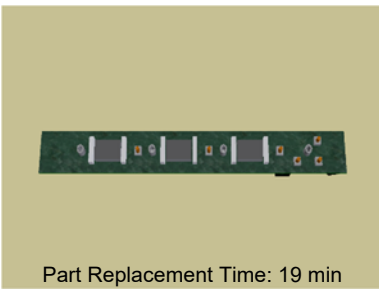
Part Replacement Time: 19 min
**186458 – Control, Front Right
 For Model DH5T-3BHAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



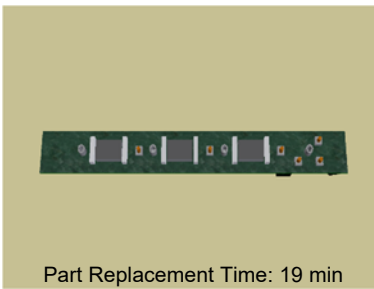
Part Replacement Time: 19 min
**186403 – Control, Front Left
 For Model DH5C-3BDSTAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



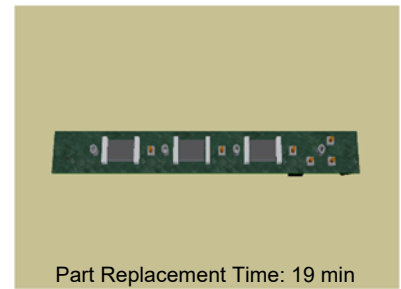
Part Replacement Time: 19 min
**186403B – Control, Back (Louvres Side)
 For Model DH5C-3BDSTAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



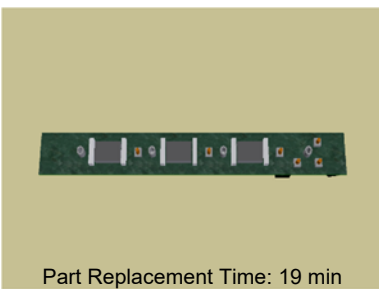
Part Replacement Time: 19 min
**186404 – Control, Front Right
 For Model DH5C-3BDSTAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



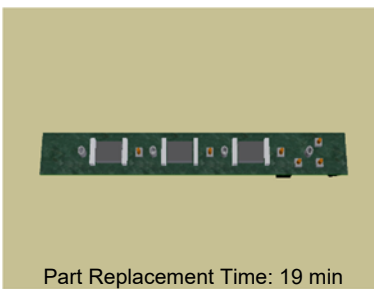
Part Replacement Time: 19 min
**186403 – Control, Back (Non-Louvres)
 For Model DH5C-3BDSTAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: 19 min
**186409 – Control, Front Left
 For Model DH5C-3BHAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: 19 min
**186410 – Control, Front Right
 For Model DH5C-3BHAR**

Time/temperature controller. Replace if the controller is not operating according to specs or if it will not turn on when 8.5VDC is supplied to it. No programming needed.



Part Replacement Time: N/A
**502075 - Cord, 14/3 SJTOW W/STR 120V Plug
 All Models**

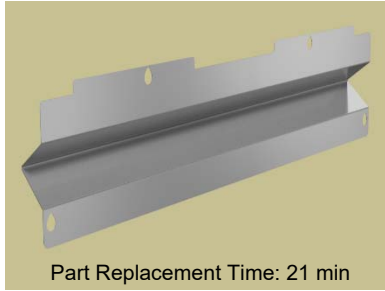
120V main power cord. Damaged cord can cause unit to stop operating and should be replaced.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT

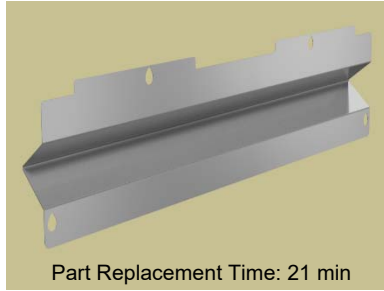


REPLACEMENT PARTS



Part Replacement Time: 21 min
186451 - Cover, Back
For Models DH5T-3BHAR

The back cover helps for pan positioning as well as helping with cabinet efficiency by retaining heat. Replace if missing.



Part Replacement Time: 21 min
186407 - Cover, Back
For Models DH5C-3BHAR

The back cover helps for pan positioning as well as helping with cabinet efficiency by retaining heat. Replace if missing.



Part Replacement Time: 9 min
504344 - Fan, Cooling, Boxer, 115VAC
All Models

Fan used inside control box to cool electrical components. Failure can cause electrical components to overheat and fail or alter food product quality. Should be replaced if worn or damaged.



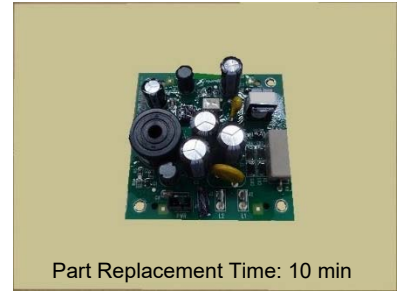
504566 - Pan 1/3 Double Handles
For Model DH5T-3BDSHAR & DH5C-3BDSHAR

2 1/2" Deep 1/3 Pan. Replace if missing or damaged.



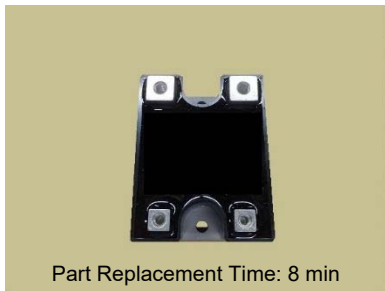
504331 - Pan 1/3 Single Handle
For Model DH5T-3BHAR & DH5C-3BHAR

2 1/2" Deep 1/3 Pan. Replace if missing or damaged.



Part Replacement Time: 10 min
504318 - Power Supply
All Models

The 120VAC to 8.5VDC power supply is used to power the time/temperature controllers. A defective power supply could cause all controllers to not turn on when powered.



Part Replacement Time: 8 min
504023 - Relay, Solid State 25A
All Models

SSRs are used to turn on and off power delivered to their associated heater once it reaches temperature set point. Failure will cause the associated heater to excessively rise above set point and might cause permanent damage to it.



502064 - Sensor, RTD, 48"
All Models

Used to read heater's temperature. If a RTD sensor goes bad or is disconnected, its associated controller will beep and the display will flash either "oPn" or "SHt" to indicate failure.



502425 - Switch, Double Pole
All Models

One switch for each deck is used to allow energy efficiency. A bad switch could cause the associated controller to not turn on. Bad or damaged switches should be replaced immediately.

OWNER'S MANUAL

MODEL DH5T & DH5C SERIES W/ GREEN/RED LED'S – HEATED HOLDING UNIT

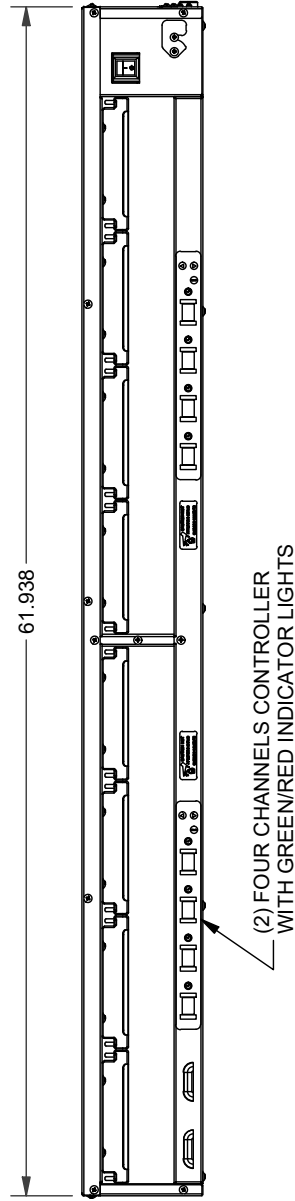
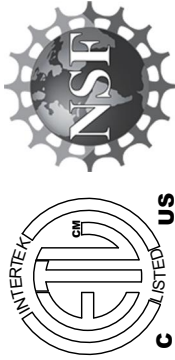


REPLACEMENT PARTS



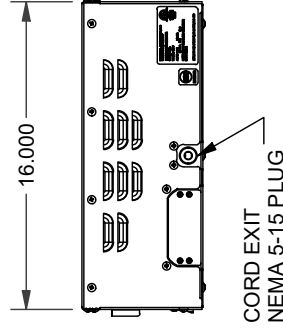
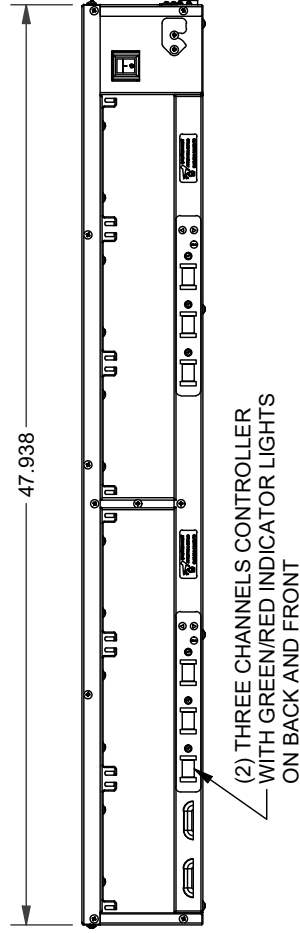
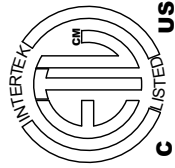
504346 - USB Gateway Board
All Models (Optional)

The USB gateway board allows the user to download controller software updates as well as new settings configurations using a USB flash drive. Board should be checked for proper operation if a valid file cannot be downloaded using a flash drive.



OVERALL DIMENSIONS DH5T-3BHAR & DH5T-3BDSHAR

FIGURE 1

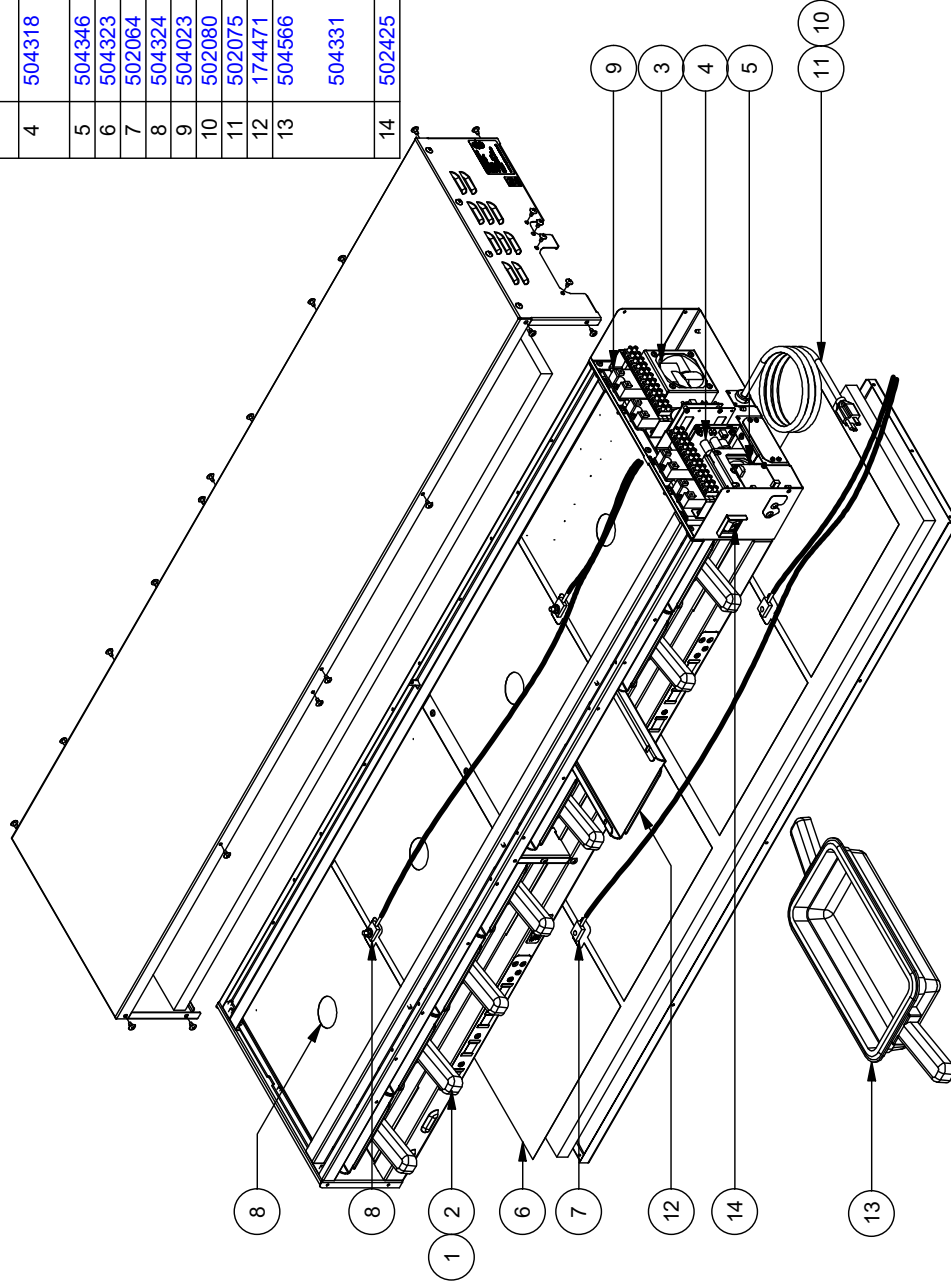


OVERALL DIMENSIONS DH5C-3BDSHAR & DH5C-3BDSHAR

FIGURE 1A



Parts List		
ITEM/PART NO.	DESCRIPTION	QTY
1	185627 CONTROL, FRONT LEFT	1 (DH5T-3BDSHAR)
	185628 CONTROL, FRONT RIGHT	1 (DH5T-3BDSHAR)
	185627B CONTROL, BACK LOUVRES SIDE	1 (DH5T-3BDSHAR)
	185628B CONTROL, BACK NON LOUVRES SIDE	1 (DH5T-3BDSHAR)
	186457 CONTROL, FRONT LEFT	1 (DH5T-3BHAR)
	186458 CONTROL, FRONT RIGHT	1 (DH5T-3BHAR)
2	504481 OVERLAY, 4CH. LED CONTROL	4 (DH5T-3BDSHAR)
		2 (DH5T-3BHAR)
3	504344 FAN, COOLING, BOXER, 115VAC	2 (DH5T-3BDSHAR)
		1 (DH5T-3BHAR)
4	504318 POWER SUPPLY	2 (DH5T-3BDSHAR)
		1 (DH5T-3BHAR)
5	504346 USB GATEWAY BOARD	1
6	504323 BLANKET, BOTTOM HEATER	4
7	502064 SENSOR, RTD, 48"	4
8	504324 BLANKET, TOP HEATER	4
9	504023 RELAY, SOLID STATE 25A	4
10	502080 CONNECTOR, STRAIN RELIEF	1
11	502075 CORD, WITH NEMA 5-15 PLUG	1
12	174471 LID, 1/3 PAN	8
13	504566 PAN, 1/3 AMBER	8
	DOUBLE HANDLE (DH5T-3BDSHAR)	
	PAN, 1/3 AMBER	
	504331 SINGLE HANDLE (DH5T-3BHAR)	
14	502425 SWITCH, ROCKER	1

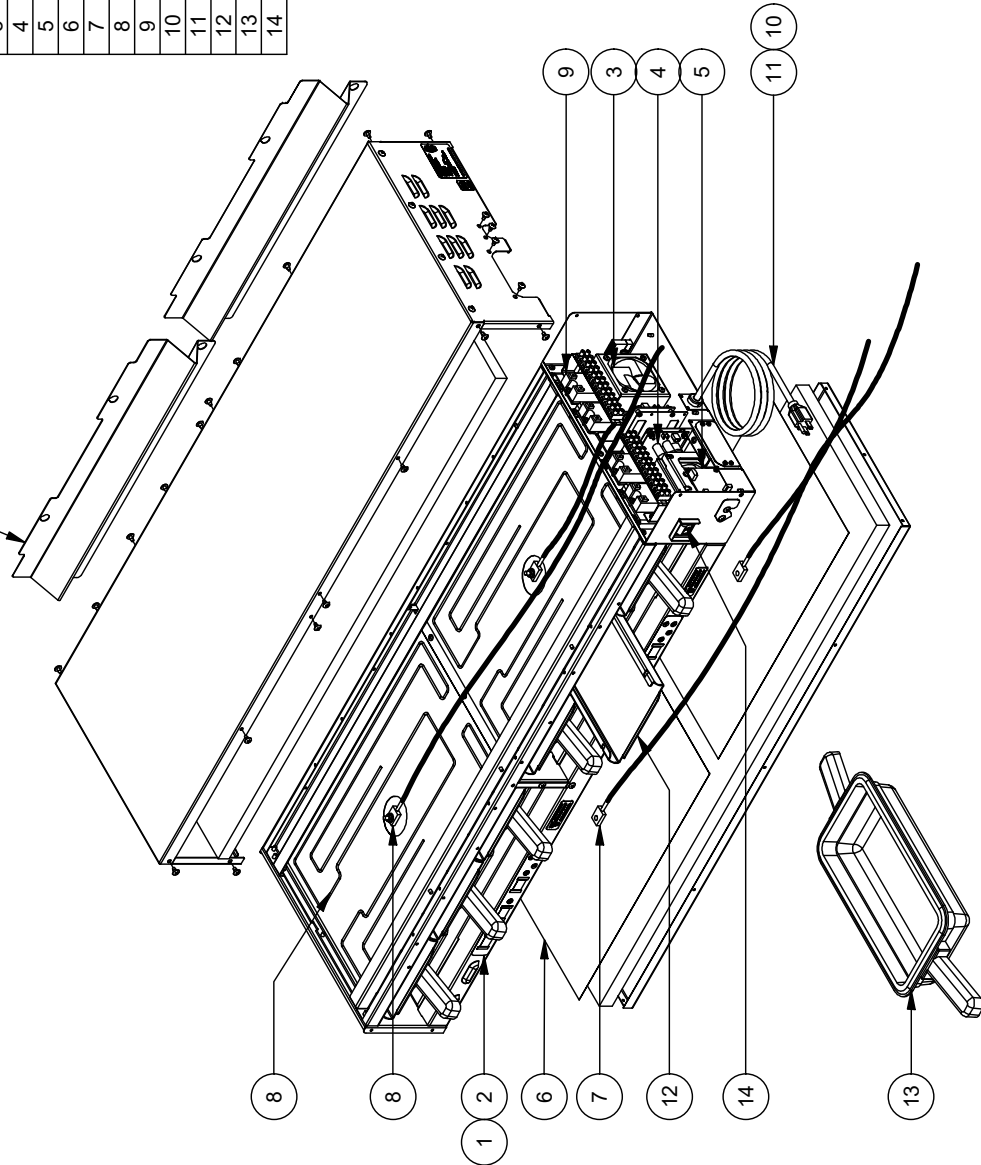


REPLACEMENT PARTS DH5T-3BHAR & DH5T-3BDSHAR

FIGURE 2



(2) PART# 186407 BACK COVER
FOR DH5C-3BHAR MODELS



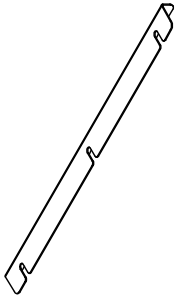
Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	186403	CONTROL, FRONT LEFT	1
	186404	CONTROL, FRONT RIGHT	1
	186403B	CONTROL, BACK LOUVRES SIDE	1
	186434B	CONTROL, BACK NON LOUVRES SIDE	1
2	163090	OVERLAY, 3CH LED CONTROL	4
3	504344	FAN, COOLING, BOXER, 115VAC	2
4	504318	POWER SUPPLY	2
5	504346	USB GATEWAY BOARD	1
6	504293	BLANKET, 200W 120V	2
7	502064	SENSOR, RTD 48"	4
8	504289	BLANKET, HEAT 315W 120V	2
9	504023	RELAY, SOLID STATE 25A	4
10	502080	CONNECTOR, STRAIN RELIEF	1
11	502075	CORD, WITH NEMA 5-15 PLUG	1
12	174471	LID, 1/3 PAN	6
13	504566	PAN, 1/3 AMBER 2 1/2" TALL	6
14	502425	SWITCH, ROCKER	1

REPLACEMENT PARTS DH5C-3BDSHAR & DH5C-3BHAR

FIGURE 2A

KIT CONSISTS OF:

- (2) MOUNTING BRACKETS
PART NUMBER 185611



TOOL AND HARDWARE NEEDED:

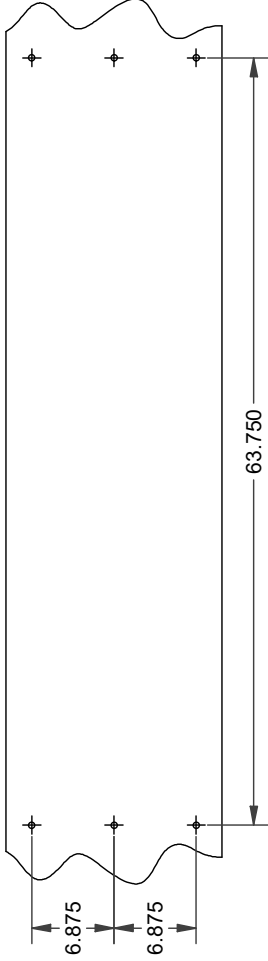
- (6) MOUNTING SCREWS #10 OR 1/4 SIZE
(NOT INCLUDED WITH KIT).
- DRILL FOR #10 OR #1/4 SIZE SCREWS.
- WASHERS (IF #10 SCREWS ARE USED
TO MOUNT BRACKETS).

STEP 1:

IF WRAP SHELF KIT #185666 IS TO BE MOUNTED ON TOP OF THE UNIT, REFER TO INSTRUCTIONS 185616 BEFORE CONTINUING TO STEP 2.

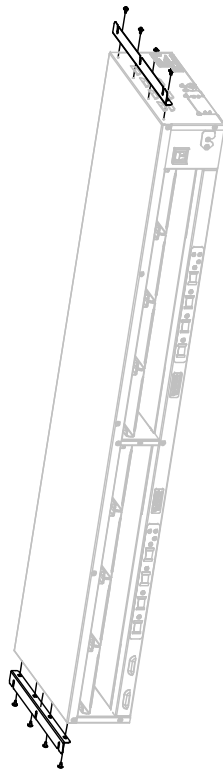
STEP 2:

USE PROPER DRILL SIZE FOR SCREWS TO BE USED TO DRILL (6) MOUNTING HOLES. SEE DIMENSIONS BELOW. SCREW MOUNTING HARDWARE (NOT INCLUDED) BUT DO NOT TIGHTEN ALL THE WAY SO UNIT WITH MOUNTING BRACKETS CAN BE LATER SLIDE IN.



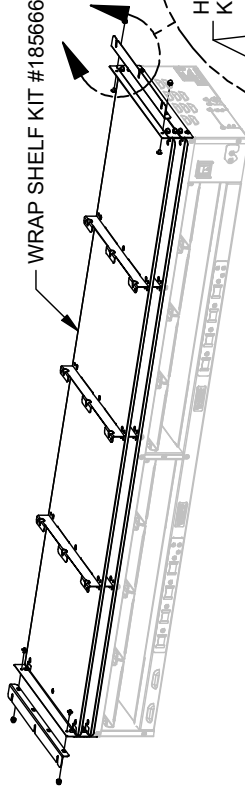
STEP 3A - UNIT WITHOUT UPPER WRAP SHELF:

USING EXISTING #10-24 SCREWS FROM UNIT TO ATTACH MOUNTING BRACKETS TO UNIT AS SHOWN.

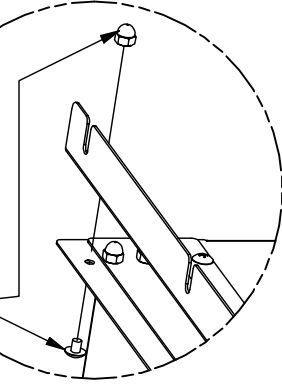


STEP 3B - UNIT WITH ONE OR MORE UPPER WRAP SHELF KIT #185666:

USE HARDWARE FROM WRAP SHELF KIT #185666 TO ATTACH MOUNTING BRACKETS TO UPPER SHELF.

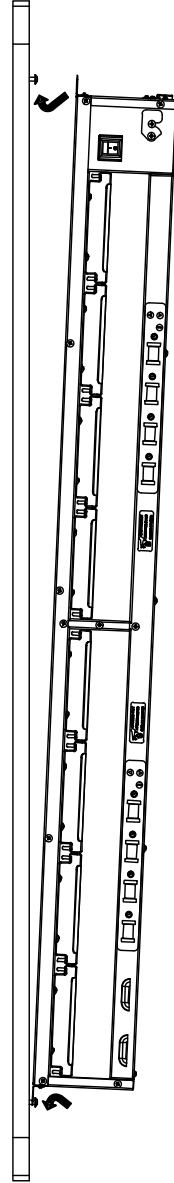


HARDWARE FROM
KIT #185666



STEP 4:

SLIDE ONE SIDE OF THE UNIT IN PLACE THEN THE OTHER SIDE AND TIGHTEN THE SCREWS.

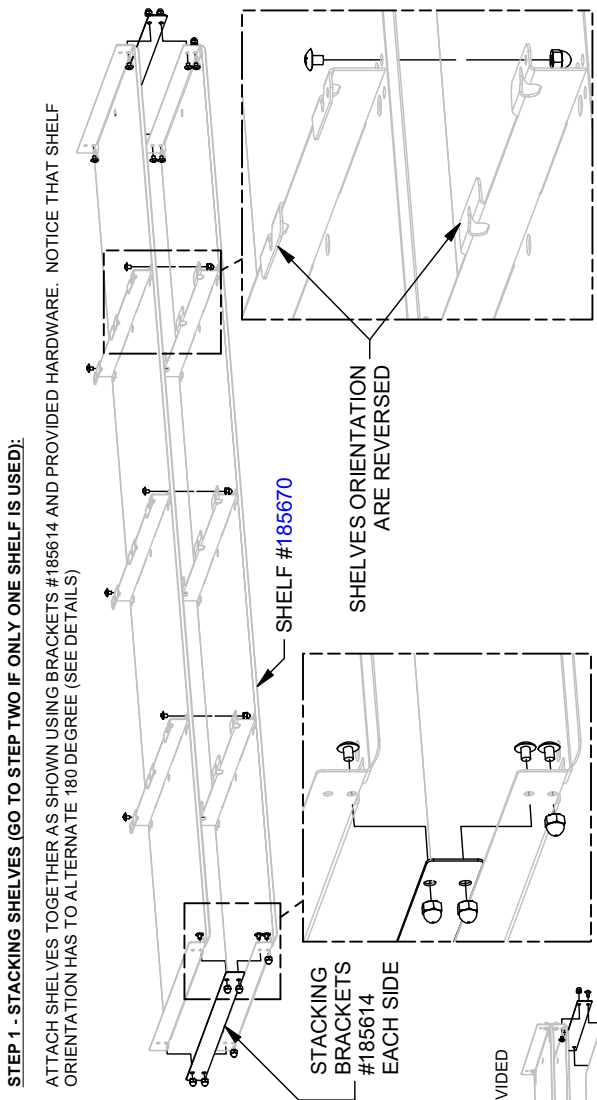


DRAWN BY:	DATE:
S.A.	1/24/2021
GENERIC NAME: INSTRUCTIONS	
PRODUCT LINE: HHC	PRODUCT CLASS: HHC
MATERIAL: REFERENCE	
---	X

MARSHALL AIR SYSTEMS, INC.			
INSTRUCTIONS, MOUNTING KIT #185665			
UNDERNEATH SHELF MOUNTING KIT			
SIZE: A	ROUTING: ASBY	DWG. NO.:	REV.:
		185615	0
SCALE:	1:18	IMAGE MAY BE REDUCED	CODE:
	NTS		BM185665

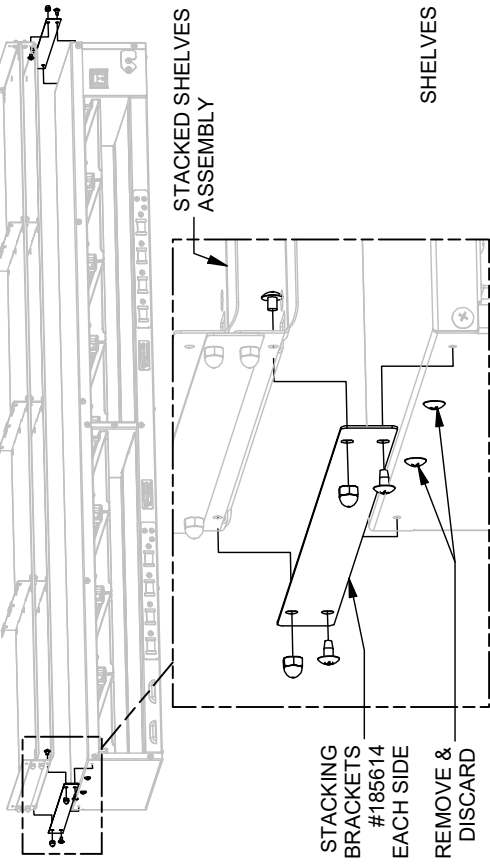
THIS KIT INCLUDES:

- (1) 185670: WRAP SHELF ASBYWD
- (2) 185614: BRACKET, WRAP SHELF STACKING
- (2) 185611: BRACKET, MOUNTING
- (15) 501500: SCR #10-32 X .250"
- (15) 501355: NUT, ACORN #10-32



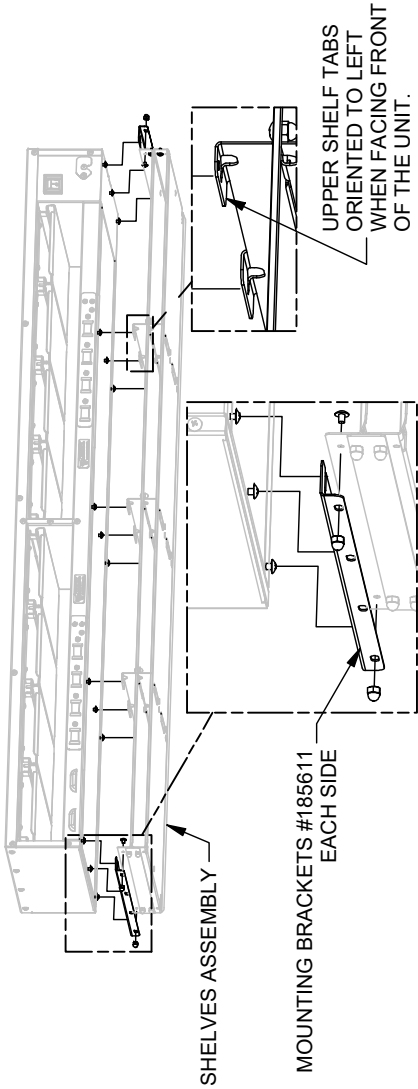
STEP 2A - ATTACHING SHELVES TO TOP OF THE UNIT:

ATTACH SHELF(VE)S TO TOP OF THE UNIT AS SHOWN USING BRACKETS #185614 AND PROVIDED HARDWARE.



STEP 2B - ATTACHING SHELVES TO UNDERNEATH THE UNIT:

ATTACH MOUNTING BRACKETS #185611 TO SHELVES ASSEMBLY USING PROVIDED HARDWARE. LOOSEN UP ALL SCREWS UNDERNEATH UNIT (DO NOT REMOVE THEM). LOOKING AT THE FRONT OF THE UNIT, ORIENT THE SHELVES ASSEMBLY AS SHOWN (SEE DETAIL VIEW). TO MOUNT SHELVES ASSEMBLY, START BY SLIDING ONLY THE RIGHT SIDE MOUNTING BRACKET IN PLACE. ONCE THE RIGHT SIDE IS SECURED, PUSH SHELF ASSEMBLY LEFT AND UP TO LOCK ASSEMBLY IN PLACE THEN TIGHTEN ALL SCREWS THAT WERE PREVIOUSLY LOOSEN.



DRAWN BY:	DATE:	MARSHALL AIR SYSTEMS, INC.	
S.A.	2/9/2021	INSTRUCTIONS, WRAP SHELF KIT #185666	
GENERIC NAME:		FOR DH5T-3BHAR & DH5T-3BDSHAR	
INSTRUCTIONS		SIZE:	REV: 0
PRODUCT LINE:	PRODUCT CLASS:	A	
HHC	HHC	ROUTING:	DWG. NO.: 185616
MATERIAL:	REFERENCE	ASBY	IMAGE MAY BE REDUCED
		NTS	CODE: BM185666
		SCALE:	1:6
			X

THIS KIT INCLUDES:

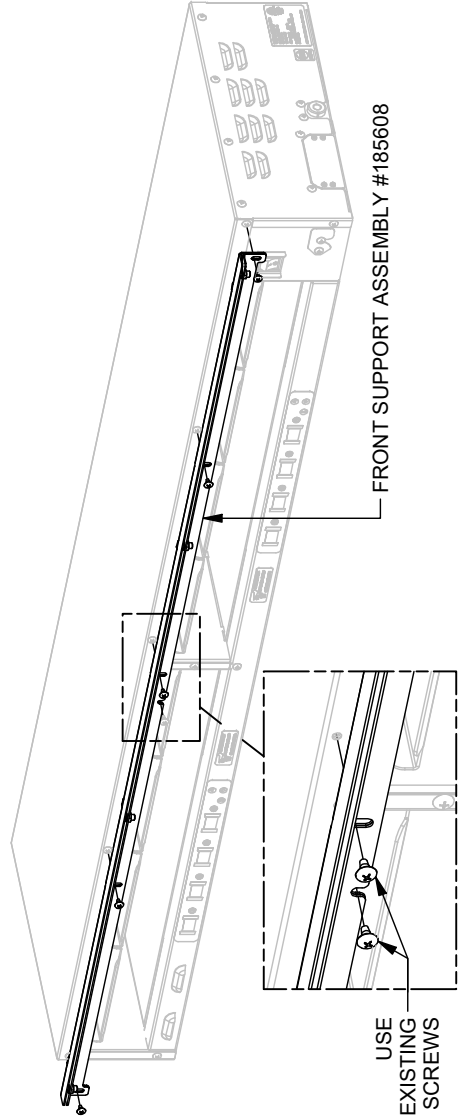
(1) 185608: FRONT SUPPORT ASSEMBLY

(3) 185603: FEET, TELESCOPE

(9) 501875: SCREW #10-32 X .375"

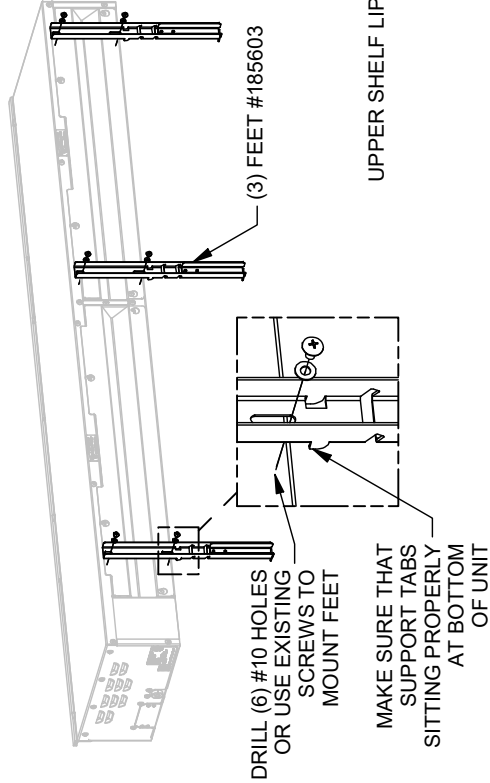
(9) 502420: FLAT WASHER

STEP 1:
MOUNT FRONT SUPPORT ASSEMBLY # 185608 ON FRONT OF THE UNIT AS SHOWN USING EXISTING SCREWS.



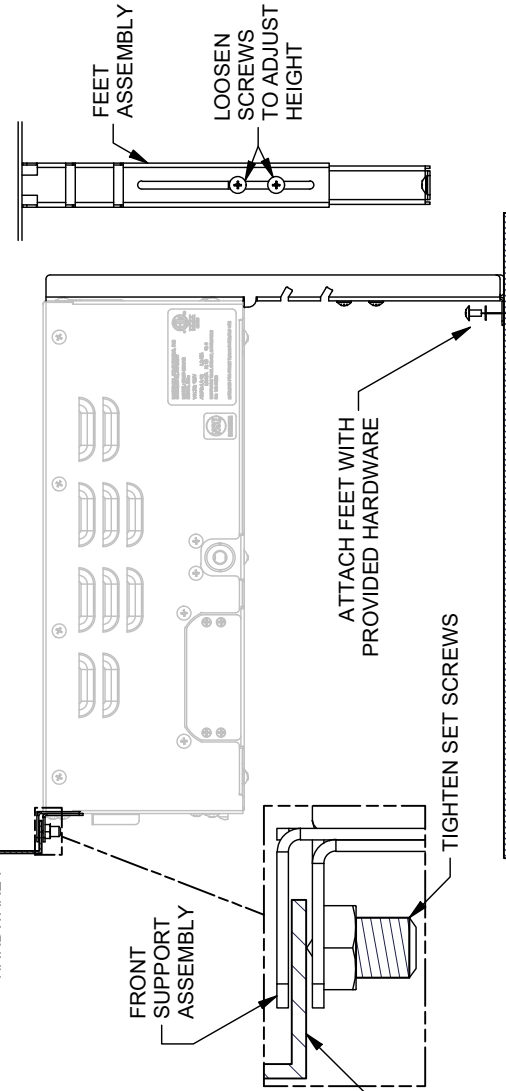
STEP 2:

DRILL (6) HOLES FOR #10 SCREWS ON THE BACK OF THE UNIT TO MOUNT (3) FEET #185603. MAKE SURE THAT FEET LOCATIONS ARE WORKING FOR THE COUNTER/TABLE TOP LAYOUT. EXISTING SCREW CAN BE USED IF NECESSARY. ATTACH FEET WITH PROVIDED FLAT WASHERS AND SCREWS PROVIDED WITH KIT.



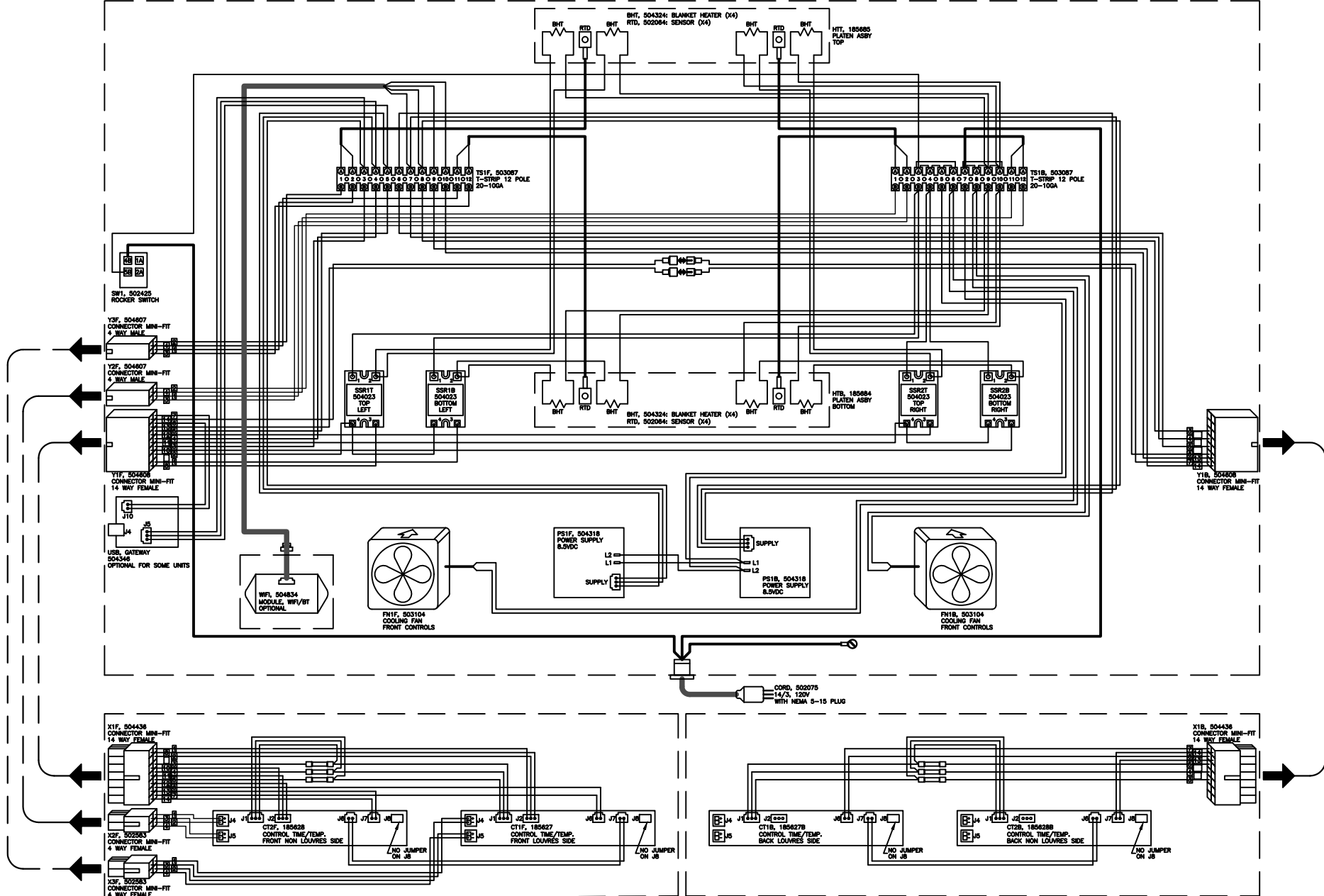
STEP 3:

PLACE UNIT ON COUNTER/TABLE TOP AND SLIDE UPPER SHELF FRONT LIP INTO FRONT SUPPORT ASSEMBLY AS SHOWN. POSITION UNIT SO FEET LOCATIONS ARE WORKING FOR COUNTER/TABLE TOP LAYOUT. ADJUST FEET HEIGHT AS SHOWN BELOW. TIGHTEN FRONT SUPPORT SET SCREWS TO SECURE UNIT IN PLACE AND FASTEN FEET TO COUNTER/TABLE TOP BY DRILLING HOLES FOR #10 SCREWS AND USING PROVIDED HARDWARE.

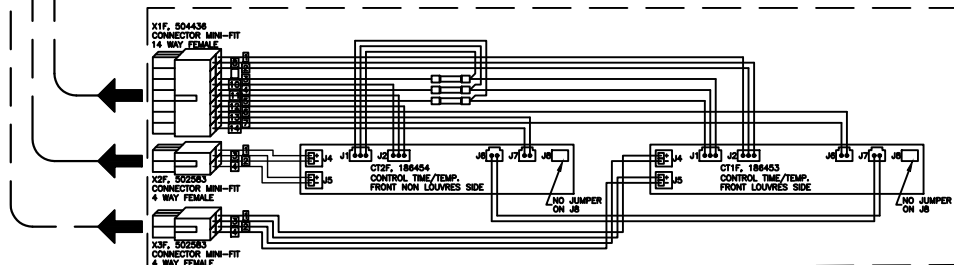
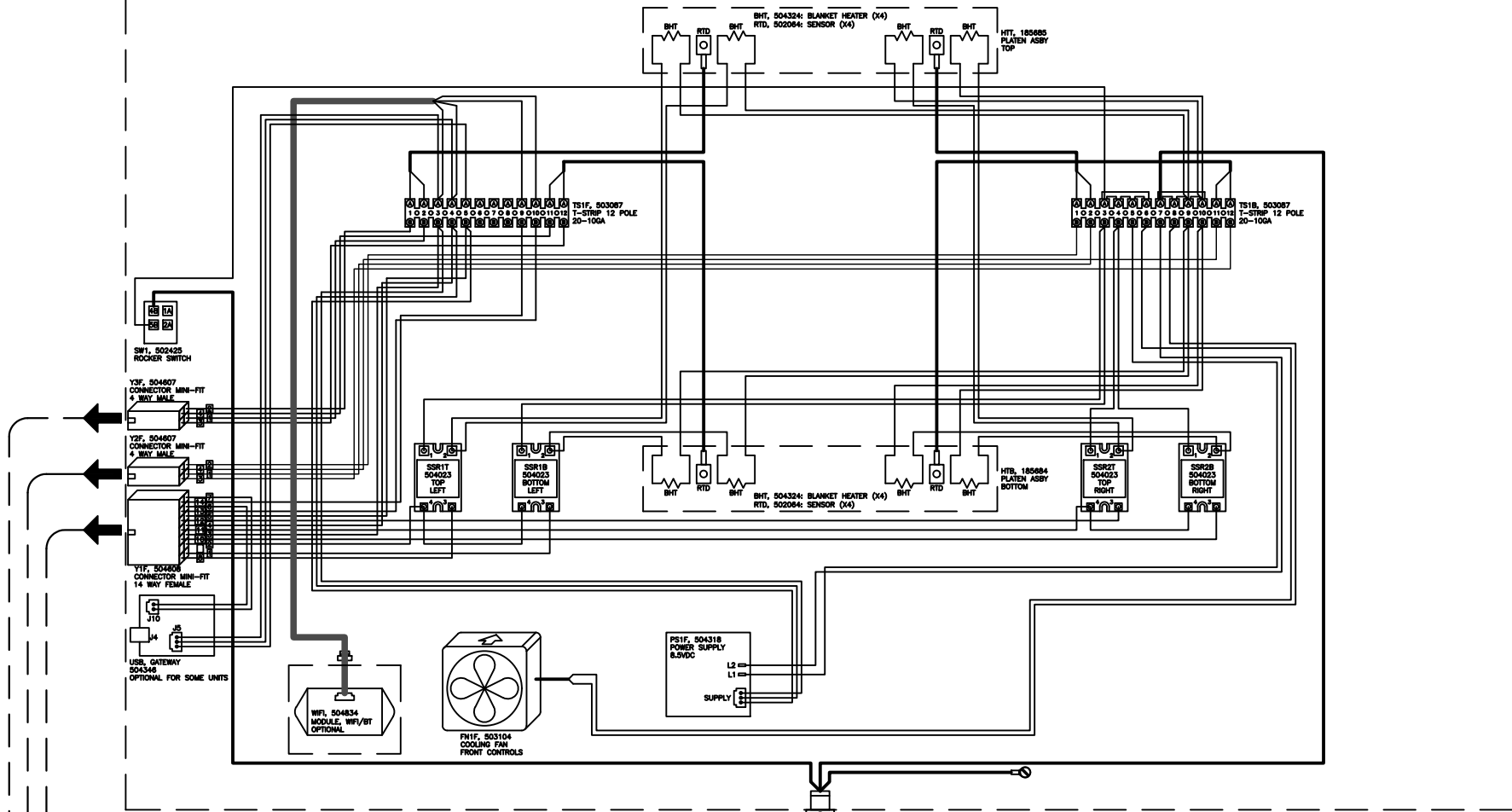


DRAWN BY: S.A.		DATE: 2/10/2021	
GENERIC NAME: INSTRUCTIONS			
PRODUCT LINE: HHC		PRODUCT CLASS: HHC	
MATERIAL: REFERENCE			
SIZE: A	ROUTING: ASBY	DWG. NO.: 185617	REV.: 0
SCALE: 1:16	IMAGE MAY BE REDUCED	CODE: BM185667	

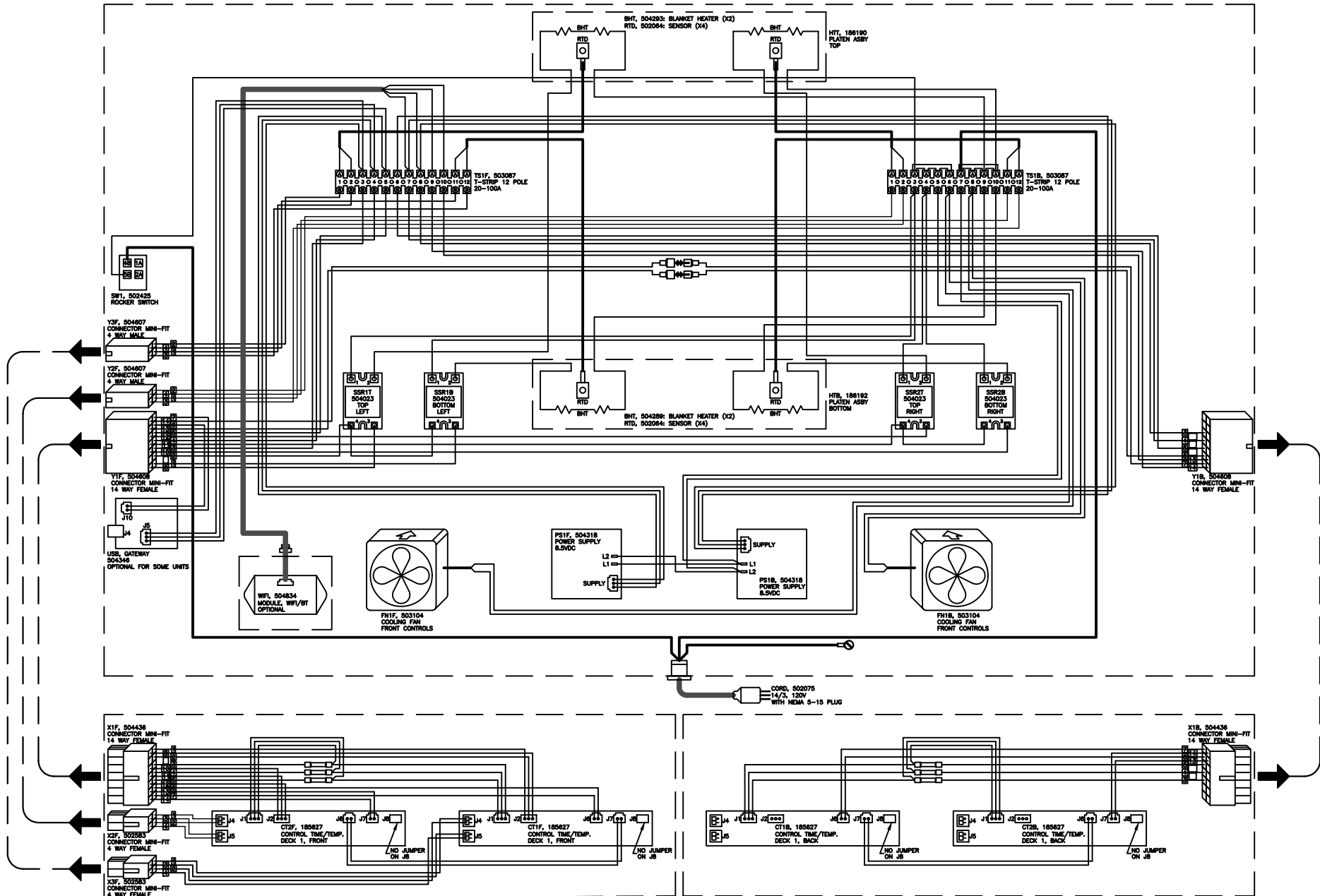
MARSHALL AIR SYSTEMS, INC.
INSTRUCTIONS, MOUNTING KIT #185667
COUNTER TOP MOUNTING KIT



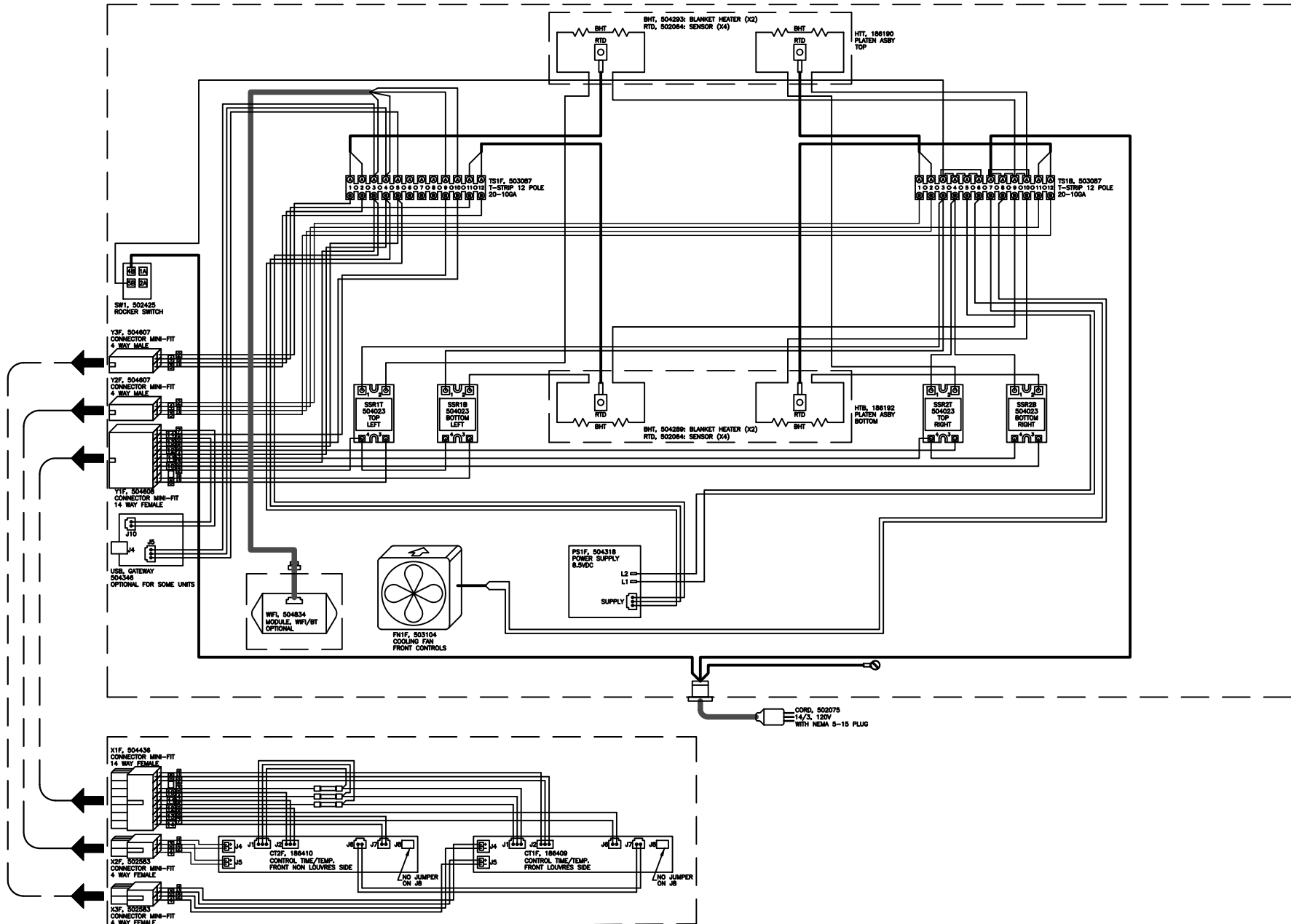
REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: S.A.	DATE: 1/8/2021	MARSHALL AIR SYSTEMS, INC.			
-	-	-	-	GENERIC NAME: SCHEMATIC					
				PRODUCT LINE: FAB	PRODUCT CLASS: HHC	1 TIER X 8 PANS WIDE DOUBLE SIDE, 120V 1830W			
				MATERIAL: REFERENCE	SCALE: NTS	SIZE: A	ROUTE: MANUF	DWG. NO.: 185699	REV.: 0
				" X "		SCALE: NTS	IMAGE MAY BE REDUCED	CODE: DH5T-3BDSHAR	



REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: S.A.	DATE: 1/22/2021	MARSHALL AIR SYSTEMS, INC.				
-	-	-	-	GENERIC NAME: SCHEMATIC						SCHEMATIC - HOLDING CABINET
				PRODUCT LINE: FAB	PRODUCT CLASS: HHC	1 TIER X 8 PANS WIDE SINGLE SIDE, 120V 1830W				
				MATERIAL: REFERENCE	SIZE: A	ROUTE: MANUF	DWG. NO.: 185609	REV.: 0		
				SCALE: NTS		IMAGE MAY BE REDUCED NTS		CODE: DH5T-3BHAR		



REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: A.E.	DATE: 1/21/2021	MARSHALL AIR SYSTEMS, INC.					
-	-	-	-	GENERIC NAME: SCHEMATIC							SCHEMATIC - HOLDING CABINET
				PRODUCT LINE: FAB	PRODUCT CLASS: HHC	1 TIER X 6 PANS WIDE, 120V 1030W					
				MATERIAL: REFERENCE	SIZE: A	ROUTE: MANUF	DWG. NO.: 186186	REV.: 0			
				" X "		SCALE: NTS	IMAGE MAY BE REDUCED	CODE: DH5C-3BDSHAR			



REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: A.E.	DATE: 1/25/2021	MARSHALL AIR SYSTEMS, INC.				
-	-	-	-	GENERIC NAME: SCHEMATIC						SCHEMATIC - HOLDING CABINET
				PRODUCT LINE: FAB	PRODUCT CLASS: HHC	1 TIER X 6 PANS WIDE SINGLE SIDE, 120V 1030W				
				MATERIAL: REFERENCE	SCALE: NTS	SIZE: A	ROUTE.: MANUF	DWG. NO.: 186408	REV.: 0	
				" X "		SCALE: NTS		IMAGE MAY BE REDUCED NTS		CODE: DH5C-3BHAR