

OWNER'S MANUAL

MODEL DH5E-3, 3B SERIES – HEATED HOLDING UNIT



DH5E-3 Shown

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

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

This Heated Holding Unit 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 DH5E-3 Series Heated Holding Units accommodates up to four 1/3 size pans, 2 1/2" deep.

Each shelf is independently controlled by an integrated time/temperature controller located on the front of the heated holding cabinet. The independent control determines the intensity of each heater. The integrated time/temperature controller also features four independent countdown timers to help maintain product integrity. An On/Off switch is accessible to the store personnel allowing them to turn the unit on or off only. The Heated Holding Unit offers 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

Model: DH5E-3, 3B
Height: 6.750"
Width: 39.125"
Depth: 14.500"
Electrical: 5.8A
Weight: 40 lbs
Approvals: NSF/ETL

FOR YOUR SAFETY

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

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.

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



TABLE OF CONTENTS

PRE INSTALLATION.....1
FINAL INSTALLATION..... 1
TO USE THE HOLDING UNIT 1
TIMER/TEMPERATURE CONTROLLER OPERATION..... 2
DAILY MAINTENANCE..... 3
MONTHLY MAINTENANCE..... 3
TROUBLESHOOTING 4
REPLACEMENT PARTS 5

ILLUSTRATIONS

OVERALL DIMENSIONS DH5E-3 SERIES.....FIGURE 1
REPLACEMENT PARTS DH5E-3, DH5E-3BFIGURE 2
TIME / TEMPERATURE ADJUSTMENT PROCEDUREFIGURE 3
WIRING SCHEMATIC, DH5E-3 DH5E-3B 120V 5.8A..... 160455

OWNER'S MANUAL

MODEL DH5E-3, 3B SERIES – HEATED HOLDING UNIT



PRE-INSTALLATION

1. The Heated Holding Unit is packaged to minimize the risk of shipping damage. Immediately upon receipt, make certain to inspect the unit for damage. **FILE ALL CLAIMS WITH THE FREIGHT CARRIER.**
2. Unpack and inspect the unit. **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 120v receptacle rated for 15 amps.

TO USE THE HOLDING UNIT

1. Turn on the power switch. The unit is ready to use after a 30 minute preheat period.
2. The unit is factory set for a temperature of 185°F for both lower and upper heaters. The factory set hold time is 60 minutes with the alert happening at the 54 minute time. If a new setting is required, follow the instructions in Figure 3 to adjust the settings. **DO NOT SET THE TEMPERATURE HIGHER THAN 290° F. DOING SO WILL CAUSE DAMAGE TO THE UNIT.**
3. Place the product pan into the holding cabinet in position 1, 2, 3 or 4. Press the associated timer button that corresponds to the pan position (see User Interface below) to begin timer.
4. The corresponding display will then show the remaining holding time. Once the corresponding holding time reaches 54 minutes of hold time it will sound a warning alert.
5. Once the corresponding holding time reaches the final minute, the display will change from minutes to seconds.
6. Once the corresponding holding time reaches 0, a warning alert will sound. Press and release the corresponding pan timer button to stop.
7. Any timer can be stopped at any time during the holding period, by pressing and holding the pan timer button for 2.5 seconds.

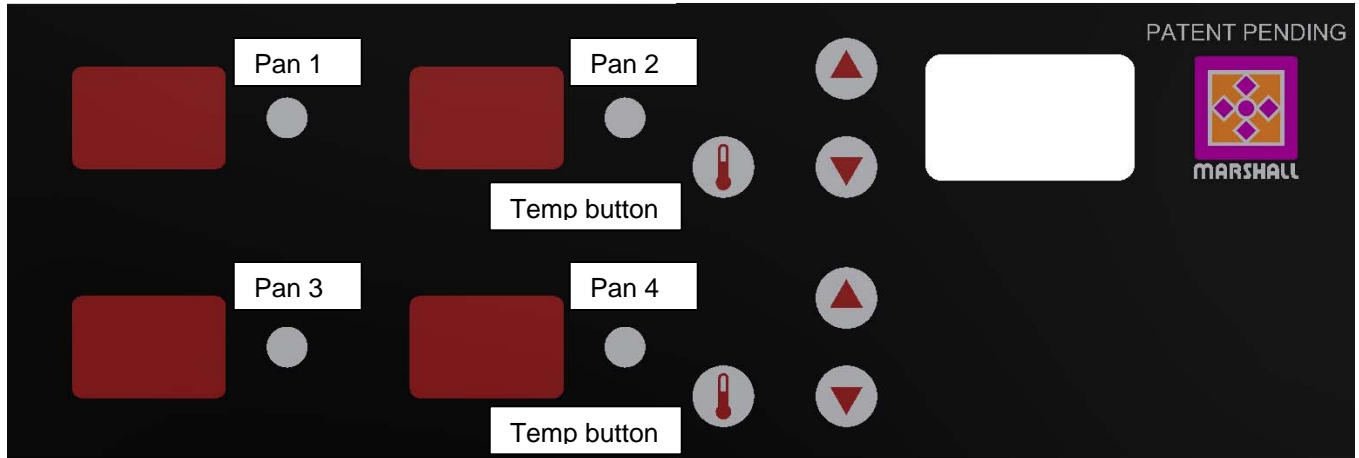
OWNER'S MANUAL

MODEL DH5E-3, 3B SERIES – HEATED HOLDING UNIT



TIMER/TEMPERATURE CONTROLLER OPERATION

The following is the user interface layout:



TIMER FUNCTIONS

The factory set hold time is 60 minutes with the alert happening at the 54 minute time. If a new setting is required, follow the instructions in Figure 3 to adjust the settings.

TIMER DISPLAY

"PrE" "hEt" The holding unit has not reached ready mode for holding (factory set for 30 minutes).

"----" Holding unit has reached ready time for holding but timers not active.

"42" Timer active, hold time remaining (flashes last 10% of the holding period with an audible alert at the start of the last 10%).

"000" Holding period has elapsed. Product to be discarded (flashes with audible alert).

DISPLAY TEMPERATURE

Press the appropriate temperature button to display the desired pan's upper temperature . The left display will show "uP" for the upper heater while the right display shows the temperature. Press the temperature button again to display the lower temperature for the same pans. The left display will show "Lo" for the lower heater while the right display shows the temperature. Press and hold the temperature button to exit.

ADJUSTING TEMPERATURE, HOLDING PERIOD OR PRE-ALARM %

The unit is factory set, however, if a new setting is required; follow the instructions in Figure 3 to adjust the settings. **DO NOT SET THE TEMPERATURE HIGHER THAN 290°F. DOING SO WILL CAUSE DAMAGE TO THE UNIT.**

OWNER'S MANUAL

MODEL DH5E-3, 3B SERIES – HEATED HOLDING UNIT



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 and non-abrasive cleaner. **DO NOT IMMERSE UNIT IN WATER! DO NOT USE CAUSTIC CLEANING SOLUTIONS!**
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 DH5E-3, 3B SERIES – HEATED HOLDING UNIT



TROUBLESHOOTING CHART

** DISASSEMBLING HEATER VOIDS WARRANTY **

Identify problem in the left column and look for a possible cause in the middle column and the solution in right hand column. Probable causes listed in the order they are most likely to happen. This sequence should be used to isolate the problem.

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. NO HEAT	A. UNPLUGGED B. CIRCUIT BREAKER IS TRIPPED C. CORD DEFECTIVE D. CONTROLLER "OFF" E. DEFECTIVE SOLID STATE RELAY	A. PLUG IN B. RESET BREAKER - CALL AN ELECTRICIAN IF TRIPPED TWICE C. REPLACE DEFECTIVE CORD D. TURN CONTROLLER "ON" E. REPLACE DEFECTIVE SOLID STATE RELAY
2. LOW PRODUCT TEMPERATURE	A. TEMPERATURE SET TOO LOW B. EXCESSIVE AIR DRAFT(S)	A. ADJUST TO HIGHER SETTING B. SHIELD DRAFT(S) OR MOVE UNIT
3. ERROR CODE: "OPN" "UP" OR "LO"	A. OPEN SENSOR EITHER UPPER "UP" OR LOWER "LO" B. LOOSE SENSOR CONNECTION	A. REPLACE SENSOR** B. SECURE SENSOR CONNECTION
4. ERROR CODE: "SHT" "UP" OR "LO"	A. SENSOR FAILED "SHORT"	A. REPLACE SENSOR**

*SEE 'DISPLAY TEMPERATURE' FOR ZONE LOCATIONS

****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.

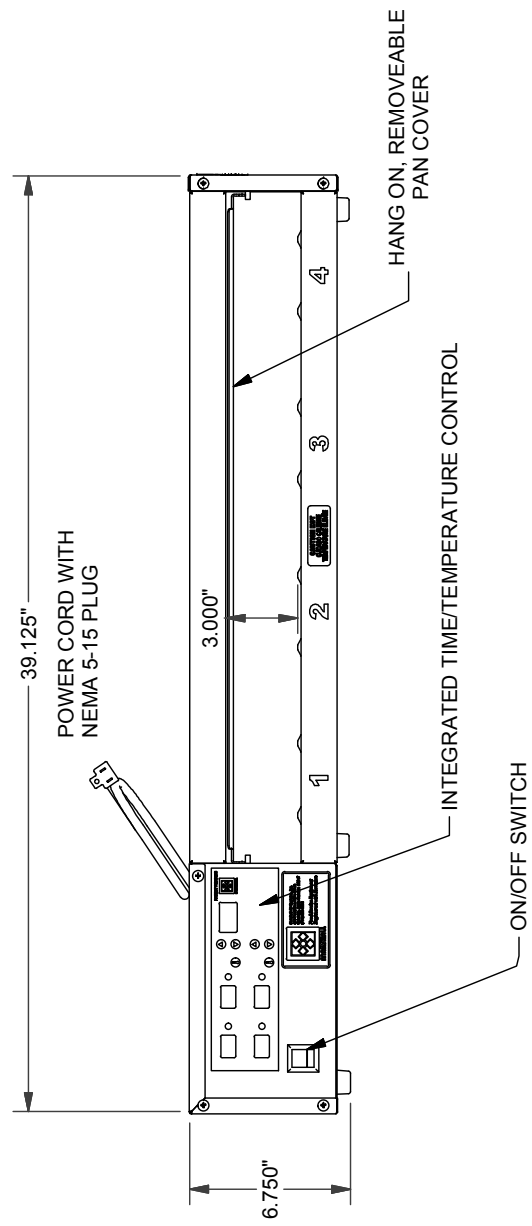
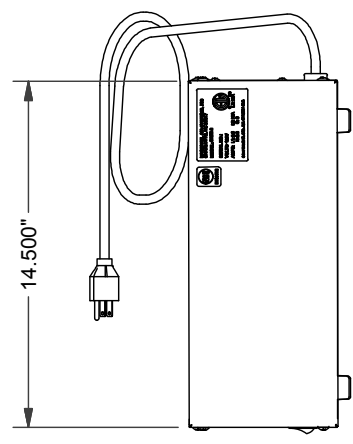
OWNER'S MANUAL

MODEL DH5E-3, 3B SERIES – HEATED HOLDING UNIT



REPLACEMENT PARTS

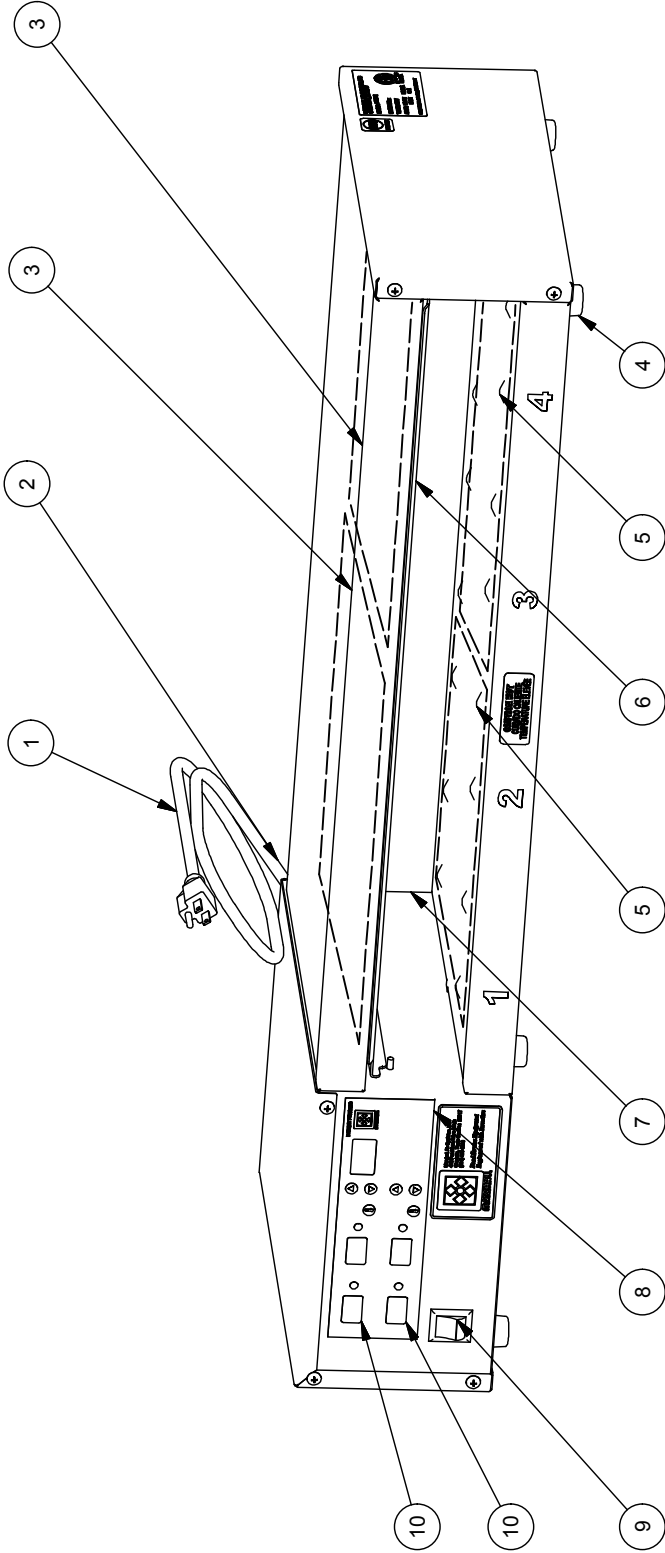
PART #	DESCRIPTION	QTY PER UNIT	LOCATION
504324	Blanket, Heater for Upper Platen	2	Figure 2, Schematic
504323	Blanket, Heater for Lower Heater	2	Figure 2, Schematic
502080	Connector, Strain Relief	1	Figure 2
160456	Control, Integrated Timer/ Temp DH5E-3	2	Figure 2, Schematic
502075	Cord, 14/3 w/STR 120V Plug Nema 5-15	1	Figure 2, Schematic
159788	Cover, Pan 2.5"	1	Figure 2
502927	Fan, Cooling 120V	1	Schematic
501867	Foot, Black	6	Figure 2
159775	Panel, Rear Cover DH5E-3B, DH5E-3	1	Figure 2
504318	Power Supply DC	1	Schematic
504023	Relay, Solid State	4	Schematic
502064	Sensor	4	Schematic
502425	Switch	1	Figure 2, Schematic



OVERALL DIMENSIONS DH5E-3, 3B

FIGURE 1D

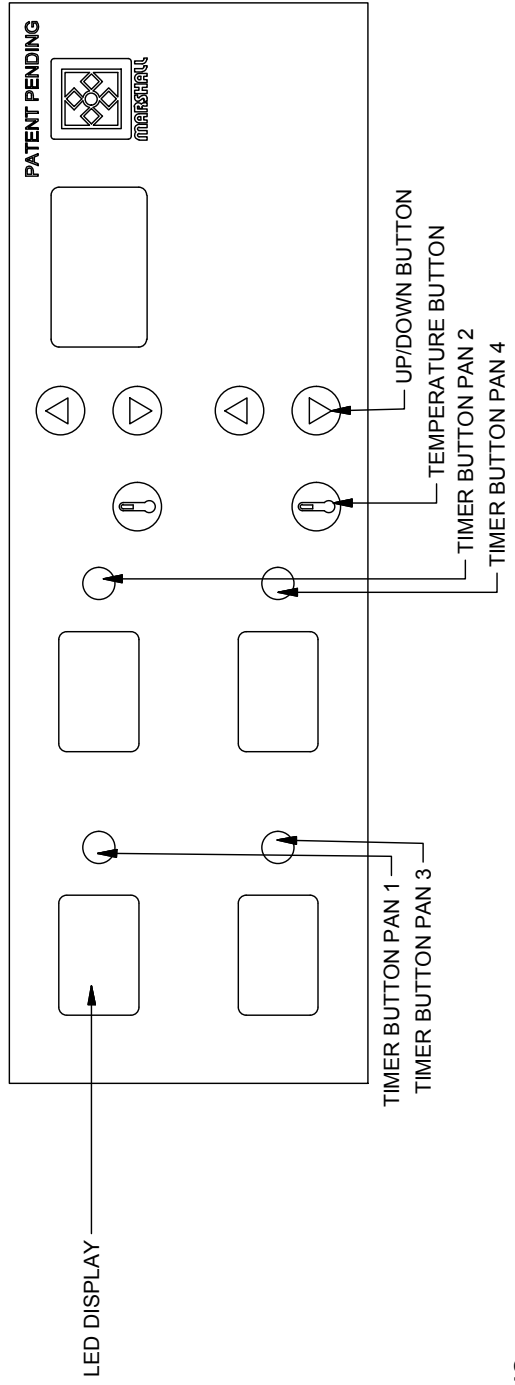
* DECK NOT USED IN ALL CONFIGURATIONS



REPLACEMENT PARTS DH5E-3, DH5E-3B FIGURE 2

Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	502075	CORD, 14/3 W/ STR 120V NEMA PLUG 5-15	1
2	502080	CONNECTOR, CORD STRAIN RELIEF	1
3	504324	BLANKET, HEATER FOR UPPER PLATEN	2
4	501867	FOOT, BLACK	6
5	504323	BLANKET, HEATER FOR LOWER PLATEN	2
6	159788	COVER, PAN 2.5"	1
7	159775	PANEL, REAR COVER DH5E-3B DH5E-3	1
8	160289	OVERLAY, CONTROL	1
9	502425	SWITCH, ON/OFF	1
10	160456	CONTROL, INTEGRATED TIMER/TEMPERATURE	2

*** SEE REPLACEMENTS PARTS LIST FOR MODEL SPECIFIC PART NUMBERS



WARNING: ALL CHANGES ARE SAVED AS THEY HAPPEN! WRITE DOWN ALL VALUES BEFORE MAKING ANY CHANGES IN CASE A WRONG VALUE IS CHANGED.

TO ADJUST HOLDING TIMES (FACTORY SET FOR 60 MINUTES):

1. PRESS AND HOLD, FOR APPROXIMATELY 2 SECONDS, THE TIMER BUTTON FOR THE PAN THAT NEEDS CHANGING.
2. THE DISPLAY WILL FLASH THE CURRENT SETTING FOR THAT PAN.
3. PRESS AND RELEASE THE UP OR DOWN BUTTONS UNTIL THE DESIRED TIME IS REACHED.
4. PRESS AND HOLD, FOR APPROXIMATELY 2 SECONDS, THE TIMER BUTTON WHEN FINISHED.
5. DO NOT PRESS ANY BUTTON AND AFTER 5 SECONDS, THE CONTROL WILL EXIT AND AUTOMATICALLY SAVE.

TO ADJUST PRE-ALARM PERCENT SETTING (WHEN ALARM SOUNDS WHEN CLOSE TO MAXIMUM HOLDING TIME):

1. ENTER PROGRAMMING MODE BY PRESSING AND HOLDING BOTH THE UP AND DOWN ARROWS FOR APPROXIMATELY 2 SECONDS. "Pr" WILL BE DISPLAYED.
2. PRESS AND RELEASE THE TEMPERATURE BUTTON UNTIL "AL" IS DISPLAYED. THIS IS THE SETTING FOR THE PRE-ALARM.
3. PRESS AND RELEASE THE UP OR DOWN BUTTONS UNTIL YOUR DESIRED PERCENTAGE IS REACHED. FOR EXAMPLE, IF HOLDING TIME IS SET FOR 60 MINUTES AND THIS PRE-ALARM SETTING IS 10 (10% LESS THAN 60 MINUTES WHICH IS FACTORY SETTING) THEN ALARM WILL SOUND AT 54 MINUTES.

WITH UNIT AT FACTORY SETTING, WAIT 30 MINUTES FOR FOOD PRODUCT TO STABILIZE AND MEASURE TEMPERATURE. IF TEMPERATURE OF FOOD PRODUCT IS LOW, FOLLOW THE PROCEDURE BELOW. WAIT 30 MINUTES FOR FOOD PRODUCT TO STABILIZE AND MEASURE TEMPERATURE. REPEAT AS NECESSARY UNTIL FOOD PRODUCT TEMPERATURE IS ACHIEVED.

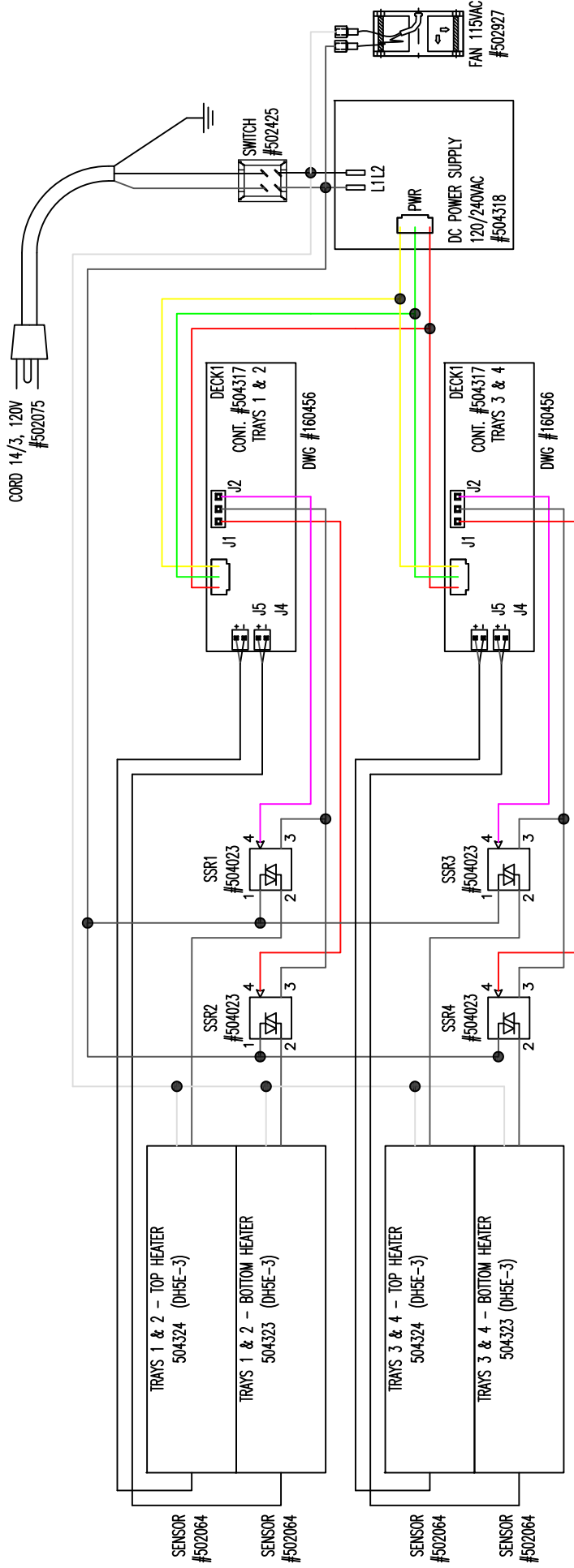
TO ADJUST TEMPERATURE:

1. ENTER PROGRAMMING MODE BY PRESSING AND HOLDING BOTH THE UP AND DOWN ARROWS FOR APPROXIMATELY 2 SECONDS. "Pr" WILL BE DISPLAYED.
2. PRESS AND RELEASE THE TEMPERATURE BUTTON UNTIL "top" IS DISPLAYED. THIS IS SET POINT FOR TOP HEATER.
3. PRESS EITHER THE UP OR DOWN BUTTONS UNTIL YOUR DESIRED TEMPERATURE IS REACHED. MAXIMUM IS 290 DEGREES.
4. PRESS AND RELEASE THE TEMPERATURE BUTTON UNTIL "bot" IS DISPLAYED. THIS IS SET POINT FOR BOTTOM HEATER.
5. PRESS EITHER THE UP OR DOWN BUTTONS UNTIL YOUR DESIRED TEMPERATURE IS REACHED. MAXIMUM IS 290 DEGREES.
6. ONCE FINISHED, PRESS AND HOLD THE TEMPERATURE BUTTON FOR APPROXIMATELY 2 SECONDS UNTIL PROGRAMMING MODE IS EXITED.

TIME / TEMPERATURE ADJUSTMENT PROCEDURE

FIGURE 3

This drawing is the property of Marshall Air Systems, Inc., and contains confidential and proprietary information of Marshall Air Systems, Inc. This drawing is provided to the recipient on loan only for purposes of reference, installation, use and/or maintenance of the depicted equipment of Marshall Air Systems, Inc., and for no other purpose. This drawing shall not be copied, reproduced, loaned, disposed of, or otherwise disclosed to any third party, either directly or indirectly except in carrying out the aforesaid purposes, and shall be returned to Marshall Air Systems, Inc., upon request. The recipient's acceptance of this drawing shall be deemed to constitute express consent and agreement to the foregoing terms.



REV	DESCRIPTION	DATE	REV.	BY
-	-	-	-	-

DRAWN BY: S.A.		DATE: 9/25/2012	
GENERIC NAME: SCHEMATIC			
FAB		PRODUCT CLASS: HHC	
MATERIAL: REFERENCE			
SIZE: A	ROUTE: ELECT	DWG. NO.: 160455	REV.: 0
SCALE: NTS	IMAGE MAY BE REDUCED	CODE: DH5E-3	