

**PARTS LIST  
AND  
SCHEMATICS  
MODEL NO: BTL-433**

## REPLACEMENT PART LIST FOR MODEL NO. BTL-433

ESPEC NO.	DESCRIPTION	MFG.	MFG. NO.	SYMBOL
6AAZ0152	BLADE FAN 9" DIA ALUM CW	AIR DRIVE	AD9CW25UB	CF101-FB,102-FB
6ACE0199	BLOCK DIST 175A(1)2/0-14 (6)4-14	MARATHON	1321580	DB1
6ABT0422	BREAKER CIRCUIT 489 240V 1P 10A "C"	MOELLER	FAZ-C10/1-NA	CB1
6ABT0444	BREAKER CIRCUIT 489 240V 1P 3A "C"	MOELLER	FAZ-C3/1-NA	CB5
6ABT0429	BREAKER CIRCUIT UL489 240V 1P 15A "C"	MOELLER	FAZ-C15/1-NA (SP)	CB3
6ABX0045	CABLE ETHERNET 4PR STRANDED 1FT	L-COM	TRD855-1	
6ABR0200	CAP CONNECTOR HOUSING 2P	AMP	1-480699-0	J10,J11,J13,J16
6ABR0036	CAP CONNECTOR HOUSING 3 CIRCUIT	AMP	1-480701-0	J7,8,12
5AAB0260	COIL COND 10X18-4R 2-CIRCUIT			AC101
5AAB0310	COIL EVAP 4X11-4R 2-CIRCUIT			
6AAH0060	COMPRESSOR 1/3HP R-404 115 W/MTG KIT	EMBRACO	NEK2134GK	CM101
6ABU0289	CONTACTOR 120V 3P AC1=20A AC3=9A	SQUARE D	LC1-D09G7	CTCM1,CTFAN
6ABR0321	CORD 20A 125V NEMA5-20 IEC60320 C19	INTERPOWER	86226030	
6ACE0261	COVER DIST BLOCK (FOR 1321)	MARATHON	CH1321	DB1
4ACB0026	DEHUMIDIFICATION COIL ASSEMBLY BT4			
6ABU0429	DIODE MODULE (RSB FAMILY)	SQUARE D	RZM040W	D1
6ABU0428	DIODE MODULE (RXM FAMILY)	SQUARE D	RXM040W	D2
6AAQ0060	DOOR HINGE	ESPEC JAPAN	2040801200300	
6ABA0131	DOOR OUTER OEM E-SPECIAL GASKET			
6ACZ0009	EMC RC FILTER	RED LION	SNUB	SUP1,SUP2,SUP4
6ABN0589	F4T, 2 LP, SET 1 FCTN BLOCKS, 100-240VAC	WATLOW	F4T1-A2EA-A1D2-AAA	INST1
6AAZ0161	FAN BLADE, 5" X 3/16" BORE - ALL 304SS	AIR DRIVE	10BL5CW45,3/16DIS-SS; P/N:G000291	
6AAB0014	FILTER DRIER 1/4" ODF	DANFOSS	023Z5013 DCL 032S	DR101
6ABF0001	FOOT FOR BASE	MINOR	ZB-1282	
5ACB0424	FRONT BEZEL HINGE	ESPEC		
6ABA0161	GASKET, LINER	EC	2041301378210	
6AAR0144	HANDLE	MC MASTER	13155A24	
3ACB0020	HEATER ASSEMBLY 500W @ 115V BT-433			
5AAG0422	HEATER ELEMENT 500W @ 115VAC			
6AAK0112	HEATER TUBULAR INCOLOY 500W 120VAC	WATLOW	N13C-9301	
6ABN0593	HIGH DENSITY DIGITAL IN (6)	WATLOW	FMHA-CAAA-AAAA	INST1-4
6AAQ0061	HINGE COVERS FOR 6AAQ0060	ESPEC CORP	2040521518100	
6ABR0196	INLET POWER 10A/250VAC 2P/WG	QUALTEC ELECTRONIC CORP.	701W-X2-04	INL1,2
6ACJ0015	JACK T/C TYPE T/.63HOLE MTG 425°F	OMEGA	RMJ-T-R	TCPJ1,TCPJ2,TCPJ OT
6ABN0594	LIMIT CNTRL W/UNIV INPT, MECH RLY 5A (2)	WATLOW	FMLA-LEJA-AAAA	INST1-5
6AAY0150	MOTOR .017 HP 3400 RPM 115V 50/60 HZ	EGD	9160186000300	
6AAY0028	MOTOR 14 WATT UNIT BEARING 30" LEAD	ELECTRIC MOTORS AND SPECIALTIES	SPFBE141	CF101,102
6ABZ0027	OHP/OCP TERMINAL COVER FOR 6ABZ0023	CHINO	2210601072500	
6ACJ0016	PLUG THERMOCOUPLE TYPE T	OMEGA	SMP-T-M	TCP-OCT
6ABR0320	POWER INLET 250VDC 16/20A IEC60320	INTERPOWER	83030400	J1
6ACD0027	POWER SUPPLY 24VDC 15W/.65A SLIM	IDEC	PS5R-VB24/PS5R-SB24	PS1
6ABZ0023	PRODUCT TEMP PROTECTOR OHP/OCP BOARD 2CH	CHINO	ESP-F04	
6ABZ0024	PRODUCT TEMP PROTECTOR OHP/OCP SELCT 2CH	CHINO	ESP-C02	
6ABZ0025	PRODUCT TEMP PROTECTOR SELECTOR ADAPTER	ESPEC CORP	2140201110100	
6ACP0013	REGULATOR WATER PRESSURE 8PSIG	NORGREN	R16-201-N08A	RG301
6ABU0385	RELAY 24VDC DPDT 8A W/SCK RSZE1548M	SQUARE D	RSB2A080BDS W/SCK RSZE1S48M	CRTS1
6ABU0397	RELAY 3PDT 10A/5A 24VDC COIL	TELEMECANIQUE	RXM3AB1BD	CRHUM
6ABU0371	RELAY ISOLATION 120VAC DPDT 8A	SQUARE D	RSB2A080F7 W/ SOCKET RSZE1S48M	CRMTS,CROHF

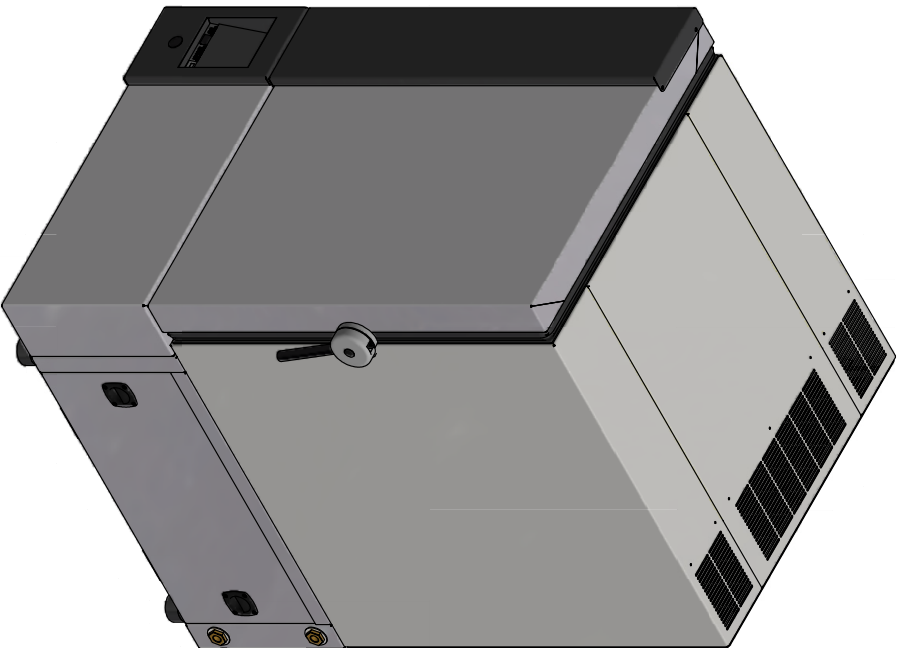
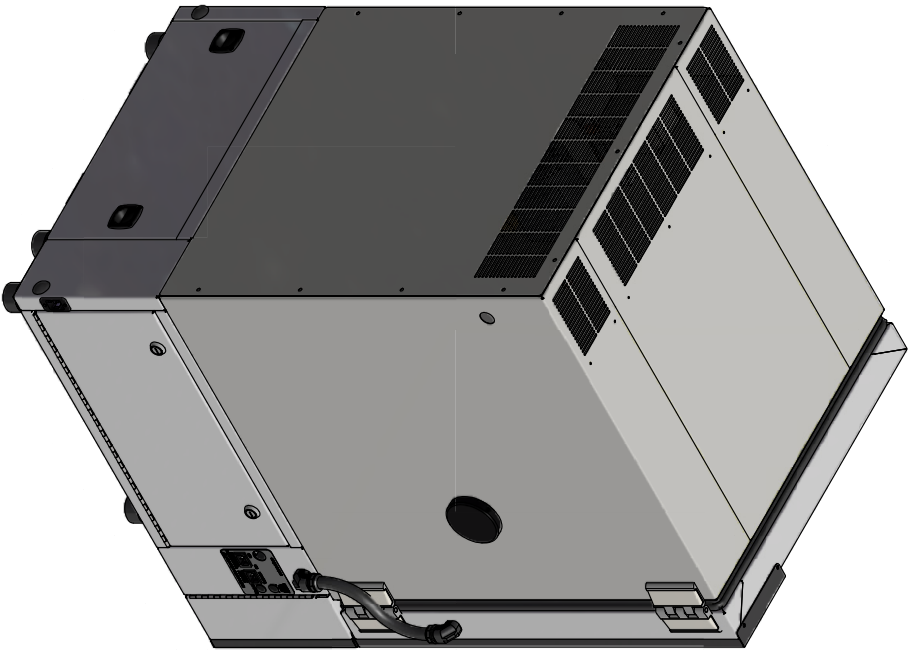
## REPLACEMENT PART LIST FOR MODEL NO. BTL-433

ESPEC NO.	DESCRIPTION	MFG.	MFG. NO.	SYMBOL
6ABU0396	RELAY SOCKET 3P (FOR RXM3)	TELEMECANIQUE	RXZE2S111M	CRHUM
6ABU0440	RELAY SS 1P 2A 24VDC IN, 230VAC OUT	PHOENIX	2982760/PLC-BSC-24DC	SSR31
6ABU0119	RELAY SS 240V 25A 1P 90-280VAC	CROUZET	84137011	SSR2
6ABU0427	RELAY SS 3-24VDC 25A 1P 24-280 VAC	CROUZET	84137010	SSR1
4ACB0274	STEAM GENERATOR TANK ASSY			
6AAU0164	THERMAL PROTECTOR 115 DEG C	SELCO/ECC	BM1-115A-H018S / BM1-120A-H018S 120° C (see note)	
6ACJ0137	THERMOCOUPLE SNGL TYPE T 6.5" PRB 5FT LD	WATLOW	20S8TUN060A0830	TC-OCT
6ABN0591	UNIVERSAL INPUT MODULE, SSR, 5A (2)	WATLOW	FMMA-UKKA-AAAA	INST1-2
6ABN0590	UNVRSAL INPUT MODULE, MECH, RELAY 5A (2)	WATLOW	FMMA-UEJA-AAAA	INST1-1
6ACP0065	VALVE BYPASS 3/8" 0 TO 55PSI	SPORLAN	ADRI-1-1/4-0/55ST 3X3ODF	BP101
6AAC0086	VALVE EXPANSION EBFS-AA-C	SPORLAN	EBFS-AA-C (STD.CONN.)	EV105
6ADA0006	VALVE FLOAT ASSY WATER LEVEL CONTROL	MAID-O-MIST	5913P	FV301
6AAD0009	VALVE HAND 1/4MPT X 1/4FPT	DWYER INST	MVB-WM2	HV304
6ACP0064	VALVE REGULATOR 1/4" ODF	PARKER	040915-001	EP101
114189	VALVE SOLENOID 120V 3/8"ODF	SPORLAN	XWG-3/8ODF-120V	SL102,103,105
114193	SOLENOID COIL CAP, YELLOW	CASTEL	G9150/R97	
114433	VALVE SOLENOID 120V 3/8ODF 50/60HZ	SPORLAN	E6S130	SL107
25210206	WICK FINE FW-1A (WG-101)SH/TSA-D/BT (24)	E.E.C.	FW-1A 5- 2678/2230401000130	WG-101 Svc Stk
4ACB0358	WIRE HARN ASSY E-BOX TO SL105 BT-UL 449A	ESPEC		P23
4ACB0357	WIRE HARN ASSY E-PNL TO SL105 BT-UL 449A	ESPEC		J23
4ACB0251	WIRE HARNESS ASSY E-BOX TO HW1/WTS 220V E			P5
4ACB0235	WIRE HARNESS ASSY E-BOX TO CM101			P2
4ACB0245	WIRE HARNESS ASSY E-BOX TO HT1 (BT4)			P13,16
4ACB0249	WIRE HARNESS ASSY E-BOX TO MTR1 BT4	ESPEC		P15
4ACB0240	WIRE HARNESS ASSY E-BOX TO SL102			P7
4ACB0241	WIRE HARNESS ASSY E-BOX TO SL103			P8
4ACB0244	WIRE HARNESS ASSY E-BOX TO SL107 BT-L			P12
4ACB0229	WIRE HARNESS ASSY E-PNL TO CM101 115V			PJ2
4ACB0233	WIRE HARNESS ASSY E-PNL TO HT1 115VAC			PJ13
4ACB0234	WIRE HARNESS ASSY E-PNL TO MTR1 115VAC			PJ15
4ACB0215	WIRE HARNESS ASSY E-PNL TO SL102 BT-L,X			PJ7
4ACB0216	WIRE HARNESS ASSY E-PNL TO SL103 BT-L,X			PJ8
4ACB0219	WIRE HRN ASSY E-PNL TO SL204/107 BTL,Z,X			PJ12
4ACB0232	WIRE HRNS ASSY E-PNL TO CF101,102 115VAC	ESPEC		PJ10,PJ11
4ACB0231	WIRE HRNS ASSY E-PNL TO HW/WTS 115V			PJ5

TITLEB: EFD 0603B 10-22-98 REV. 1.01					
DRAWING REVISION					
A 4/29/2015 T.FREED CHANGED TO F4T CONTROLLER					
MATERIAL		DRAWN JMP		DATE 5/1/2007	TITLE:  CHAMBER CONCEPT
		DESIGNED JMP	SCALE 3.25		
		TOLERANCE ±.003	UNITS INCHES	MODEL NO.	
DRAWING NO.		BT-4 1 / 2			REVISION A



ESPEC NORTH AMERICA, INC.  
4141 Central Parkway  
Hudsonville, MI 49426





### DRAWING REVISION

A: 10/06/15 MAR  
RELABELLED CB7 NOW CB8  
UPDATED CB8 FROM 1A TO  
2A, ADDED SECOND 16W  
HEATER DUE TO FROST  
PER. ECN 15087

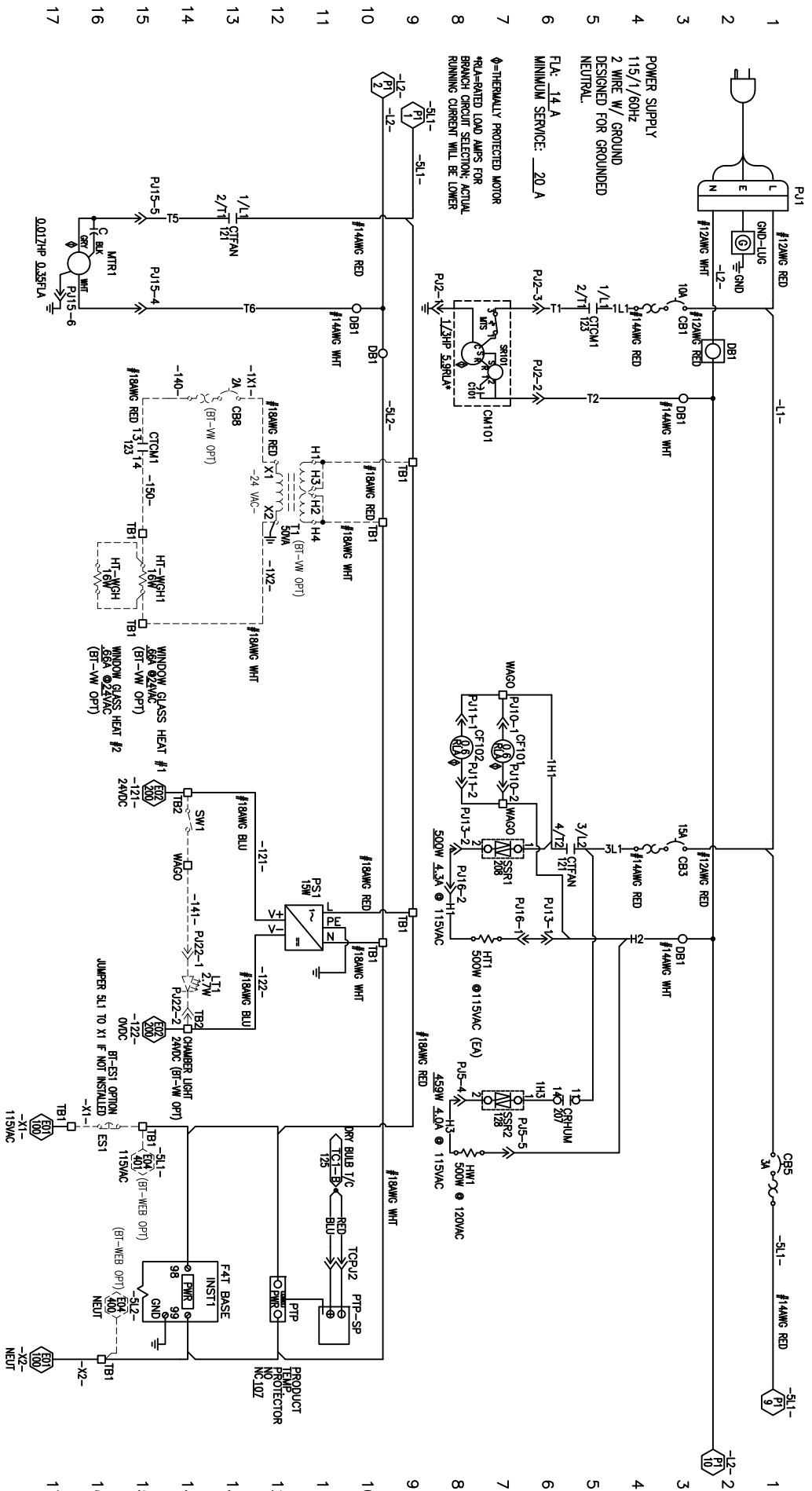
B: 2/17/16 MDM  
ADD 5L1,5L2 XREF FOR  
BT-WEB  
PER ECN: 16014

C: 05/23/16 MAR  
REMOVED 115VAC LAMP  
REPLACE WITH LED  
PER. ECN 16046

D: 04/12/19 DPA  
ADDED MTR1  
(9160186000300) WIRING  
PER ECN: 19013.

E: 5/14/19 BLD  
ADDED GND LUG  
UPDATED CM101 WIRING  
DUE TO NEW MANU.  
REMOVED WIRING DETAILS  
OF OBSOLETE BALDOR CIRC  
MOTOR PER ECN 19004

F: 02/10/21 DPA  
UPDATED CM101 WIRING  
PER ECN: 50028.



## MATERIAL



**ESPEC NORTH AMERICA, INC.**  
4141 Central Parkway  
Hudsonville, MI 49426

DRAWING NO. 7ACB0370  
1 OF 1

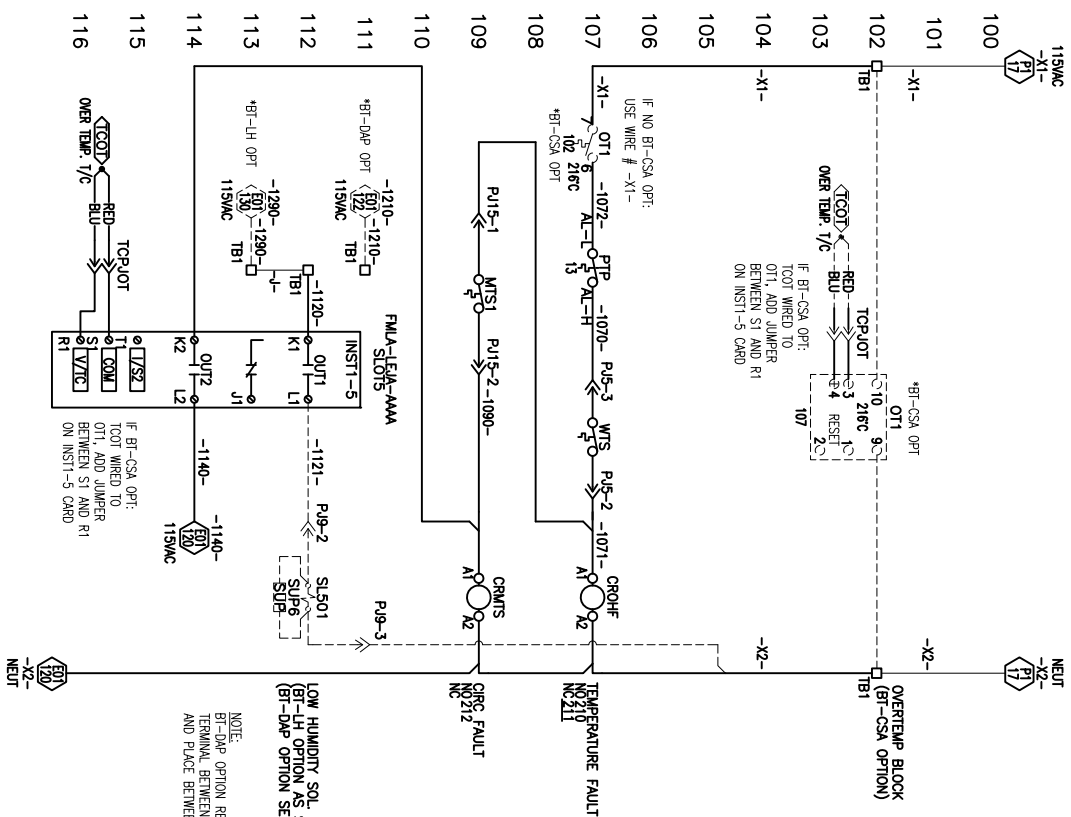
## REVISION

### DRAWING REVISION

A: 12/23/15 MAR  
CHANGED 1121 TO A  
OPTION LAYER  
UPDATED WIRING FOR SH1  
OPT  
PER. ECN 15109

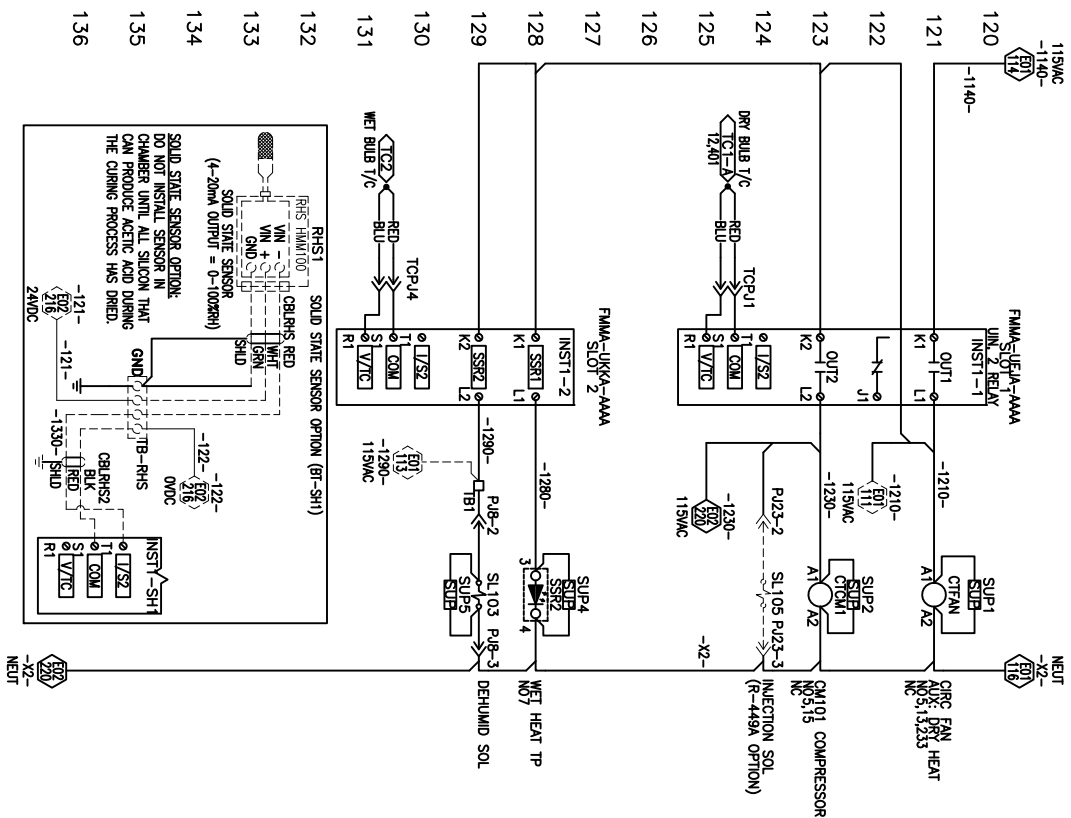
B: 05/29/18 MAR  
ADDED SL105 DUE TO  
R-449A OPT  
PER ECN 18014


01: 09/01/22 KAM  
ADDED OT1, MOVED  
TCPJOT, ADDED JUMPER TO  
F4T T/C INPUT  
PER ECO 50185



LOW HUMIDITY SOL. / DRY AIR PURGE SOL.  
(BT-LH OPTION AS SHOWN)  
(BT-DAP OPTION SEE NOTE)

NOTE:  
BT-DAP OPTION REMOVE JUMPER  
TERMINAL BETWEEN TB1: 1290-1120  
AND PLACE BETWEEN TB1: 1210-1120.



	DRAWING NO.		TITLE:  CONTROL SCHEMATIC  E01
	ESPEC NORTH AMERICA, INC. 4141 Central Parkway Hudsonville, MI 49426		
	MODEL NO. BTL-433		
MATERIAL		DRAWN MAR	DATE 04/06/15
TOLERANCE NA		DESIGNED MAR	SCALE NA
UNITS NA		REVISION 01	

TITLE: EFD 0603B  
10-22-98 REV. 1.01

DRAWING REVISION

A: 12/23/15 MAR  
A1 & A2 ON TRLN ON  
OPTION LAYER  
A1 & A2 NOW WIRE  
TOGETHER  
PER. ECN 15109

01: 7/14/22 KAM  
ADDED F2 & F3 FOR  
BT-CSA OPTION  
PER ECO 50185

MATERIAL

DRAWN  
MAR

DESIGNED  
MAR

TOLERANCE  
NA

DATE  
04/07/15

SCALE  
NA

UNITS  
NA

TITLE:  
CONTROL SCHEMATIC  
E02

MODEL NO.  
BTL-433

ESPec

ESPEC NORTH AMERICA, INC.  
4141 Central Parkway  
Hudsonville, MI 49426

DRAWING NO.  
7ACB0372  
1 OF 1

REVISION  
01

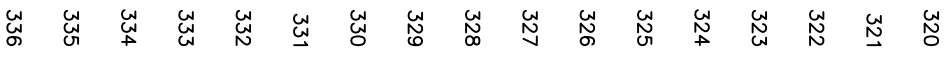
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24VDC -121- 115VAC -1230- 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236

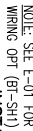
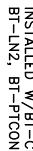
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SLOT 4  
INST1-4  
COM  
B1

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MATERIAL	DRAWN		DATE	TITLE:
	MAR		04/07/15	
	DESIGNED		SCALE	
	MAR		NA	
	TOLERANCE		UNITS	
	NA		NA	
DRAWING NO.				MODEL NO.
7ACB0373				BTL-433
1 OF 1				
REVISION				
B				



INST

RUN ETHERNET CABLE (CBL-ETH1) TO:

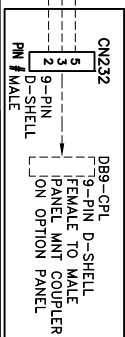
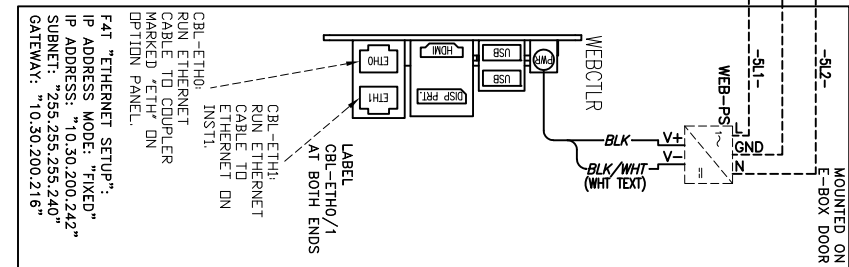
- WITH BT-WEB OPTION:

- WITHOUT BT-WEB OPTION:


COUPLER MARKED 'ETH' ON OPTION PANEL

(OPTION BT-DAQ)  
PRINTSP CABLE

FROM INST1:USB1



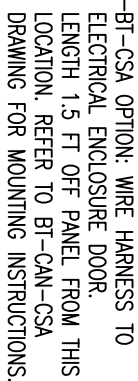
<sup>1</sup>NOTE:  
BT-CM2 AND BT-CM4 MAY  
NOT BE INSTALLED TOGETHER.

	MATERIAL		TITLE:	
	DRAWN	DATE	INSTRUMENTATION E-04	
	MAR	04/06/15		
	DESIGNED	SCALE		
	MAR	NA	MODEL NO. BTL-433	
TOLERANCE	UNITS	NA		
ESPEC NORTH AMERICA, INC. 4141 Central Parkway Hudsonville, MI 49426			DRAWING NO. 7ACB0374 1 OF 1	
			REVISION 00	

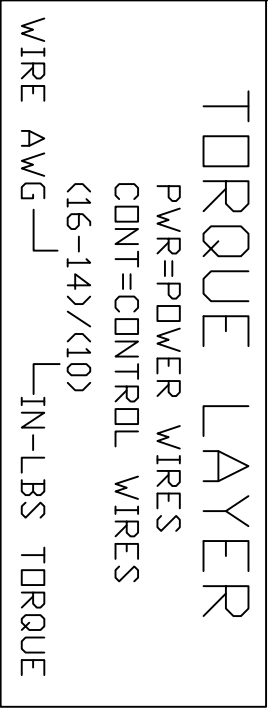


- PLUG ALL UNUSED HOLES

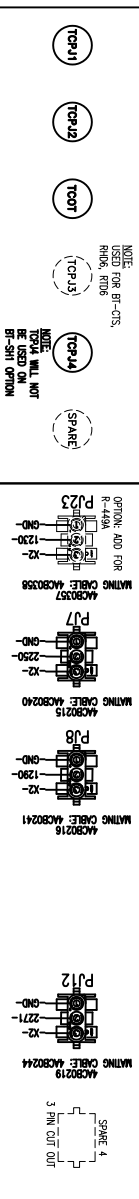
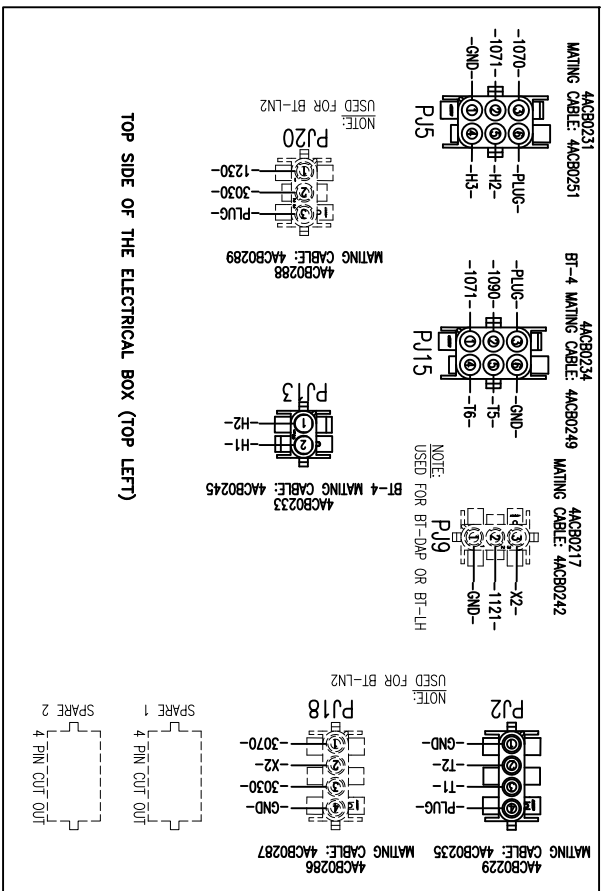
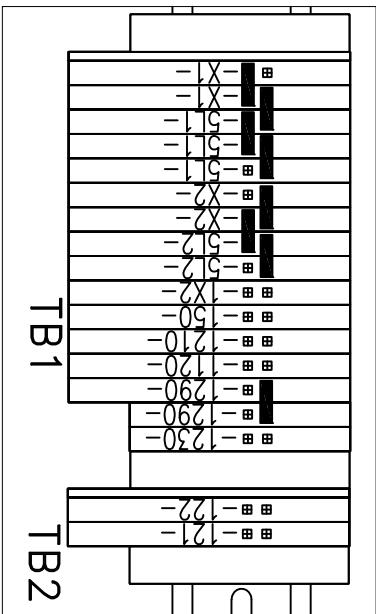
- IF UL508A CERTIFIED, PLACE ETL LABEL WHERE VISIBLE ON THE PANEL



TITLE: EFD 0603B 10-22-98 REV. 1.01			
DRAWING REVISION			
MATERIAL			
CERTIFIED TO UL 508A		DRAWN MAR	DATE 04/06/15
		DESIGNED MAR	SCALE 1:1
		TOLERANCE	UNITS INCHES
TITLE: ELECTRICAL PANEL LAYOUT		MODEL NO. BTL-433	REVISION
DRAWING NO. 3ACB0162 2 OF 4		01	




TITLE: EFD 0603B 10-22-98 REV. 1.01	
DRAWING	REVISION



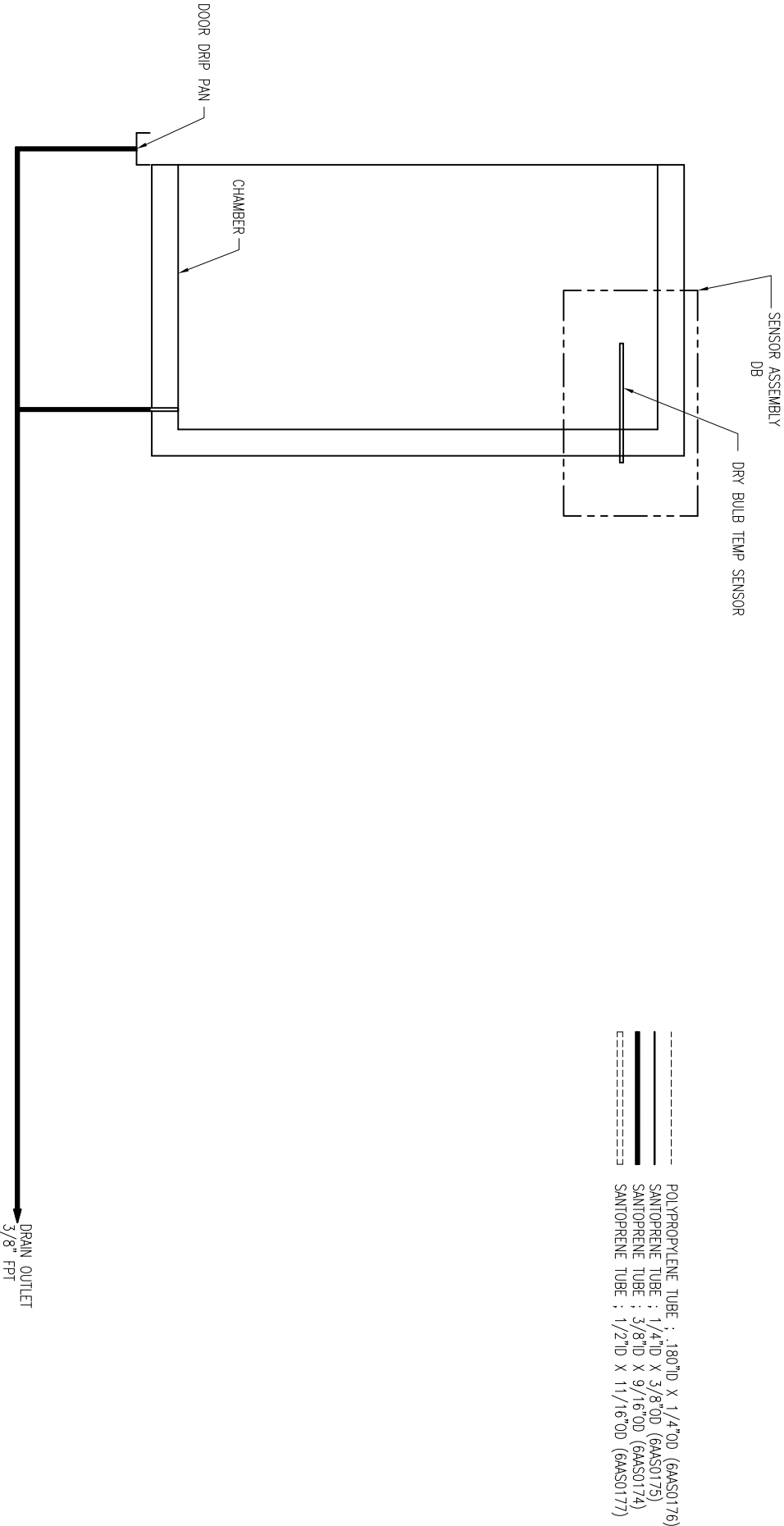
NOTE:

- (J) JACK HOUSING SIDE MOUNTED ON THE ELECTRICAL BOX SHOWN
- (P) PLUG HOUSING NOT SHOWN
- WIRE INSERTION VIEW SHOWN FOR ALL (J) JACK HOUSING



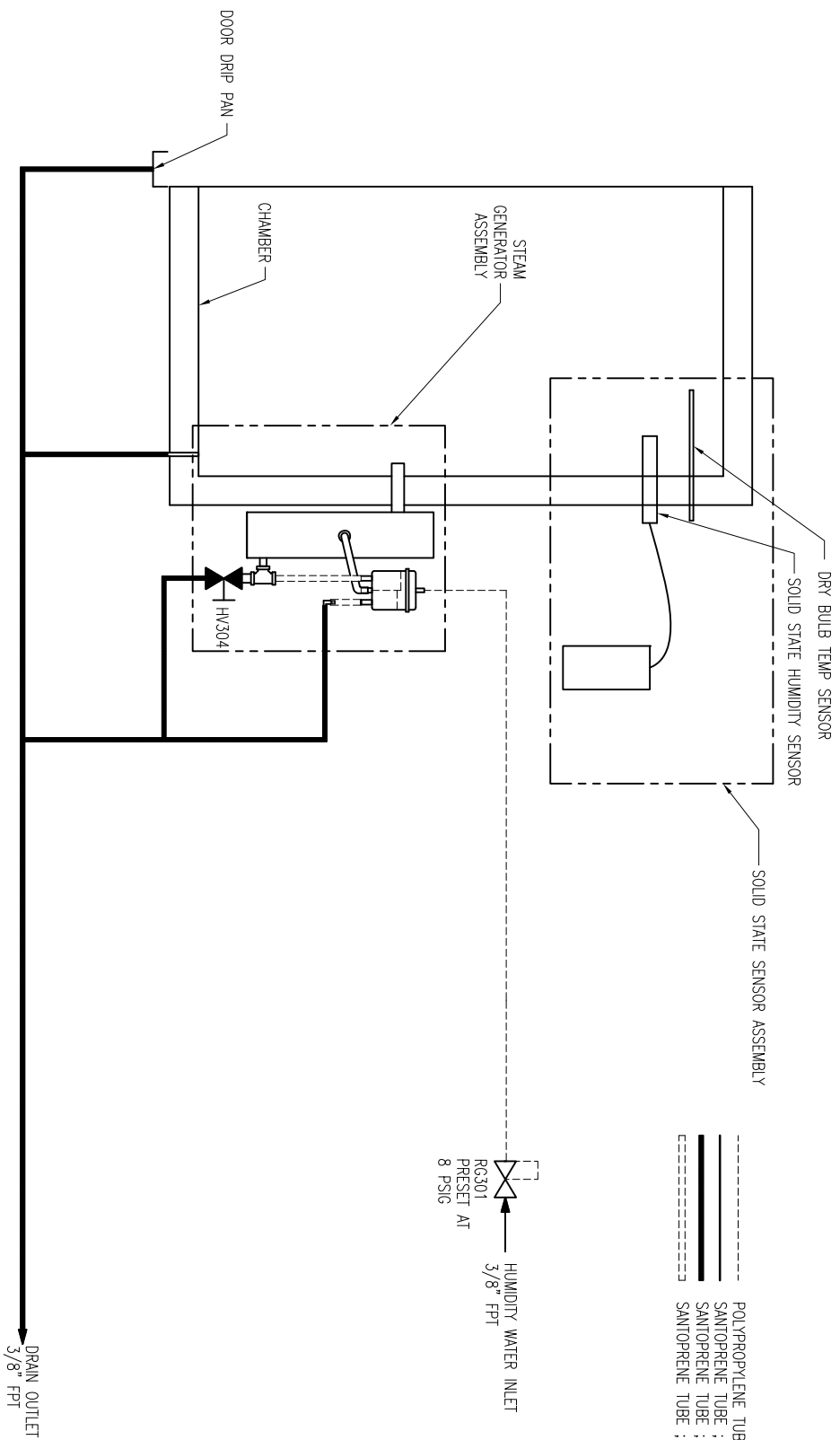
<b>MATERIAL</b>  CERTIFIED TO UL 508A	<b>DRAWN</b>	<b>DATE</b>	<b>TITLE:</b> ELECTRICAL PANEL LAYOUT TERMINAL/ CONNECTOR DETAILS
	MAR	04/06/15	
	<b>DESIGNED</b>	<b>SCALE</b>	
	MAR	1:1	
<b>TOLERANCE</b>	<b>UNITS</b>	<b>INCHES</b>	<b>MODEL NO.</b> BTL-433
 ESPEC NORTH AMERICA, INC. 4141 Central Parkway Hudsonville, MI 49426			<b>DRAWING NO.</b> JACB0162 4 OF 4
			<b>REVISION</b> 01


TITLE: EFD 0603B 10-22-98 REV. 1.01			
DRAWING REVISION			
A 5/6/2015 T.FREED NEW STYLE WB/DB ASSEMBLY B 12/30/2015 T.FREED CHANGED DRAIN ON WICK CUP			
MATERIAL		DRAWN	DATE
		B. NUMBER	3/31/10
		DESIGNED	SCALE
		B. NUMBER	N/A
		TOLERANCE	UNITS
		N/A	INCHES
ESPEC ESPEC NORTH AMERICA, INC. 4141 Central Parkway Hudsonville, MI 49426		TITLE: WATER CIRCUIT SCHEMATIC DRY BULB MODEL NO. BT	
DRAWING NO. 7ACB0035 1/3		REVISION B	









<div>  <div> <div>ESPEC NORTH AMERICA, INC.</div> <div>4141 Central Parkway</div> <div>Hudsonville, MI 49426</div> </div> </div>	<div> <div>DRAWN</div> <div>B. MUMBER</div> <div>B. MUMBER</div> <div>TOLERANCE</div> </div>		<div> <div>DATE</div> <div>3/31/10</div> <div>SCALE</div> <div>N/A</div> </div>	<div> <div>TITLE:</div> <div>WATER CIRCUIT SCHEMATIC</div> <div>DRY BULB/SOLID STATE SENSOR</div> </div>
	<div> <div>UNITS</div> <div>INCHES</div> </div>		<div> <div>MODEL NO.</div> <div>BT</div> </div>	
	<div> <div>DRAWING NO.</div> <div>7ACB0035</div> <div>3/3</div> </div>		<div> <div>REVISION</div> <div>B</div> </div>	

TITLE: EFD 0603B 10-22-98 REV. 1.01		DRAWING REVISION		00 8/17/2022 T.FREED PER ECO50236 INITIAL RELEASE	
 ESPEC NORTH AMERICA, INC. 4141 Central Parkway Hudsonville, MI 49426		MATERIAL		TITLE:	
		DRAWN T.FREED 8/17/22		REFRIGERATION SCHEMATIC	
		DESIGNED T.FREED		SCALE N/A	
		TOLERANCE ±0.03		UNITS INCHES	
DRAWING NO. 112788 1/1		MODEL NO. 1/3HP T/H A/C "L"		REVISION 00	

Bench Top Standard Chamber BTL-433  
Replacement Parts List and Schematics Manual

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Original 1.00: October 15, 2010  
Revision 1.01: December 7, 2010  
Revision 1.02: May 18, 2011  
Revision 1.03: June 20, 2011  
Revision 1.04: November 2, 2011  
Revision 1.05: February 7, 2012  
Revision 1.06: March 7, 2012  
Revision 1.07: October 2, 2012  
Revision 1.08: January 11, 2013  
Revision 1.09: April 17, 2013  
Revision 1.10: February 5, 2014  
Revision 1.11: March 26, 2014  
Revision 1.12: June 11, 2014  
Revision 1.13: September 17, 2014  
Revision 1.14: May 7, 2015  
Revision 1.15: October 30, 2015  
Revision 1.16: March 22, 2016  
Revision 1.17: March 28, 2016  
Revision 1.18: May 3, 2016  
Revision 1.19: July 22, 2016  
Revision 1.20: August 8, 2016  
Revision 1.21: October 5, 2016  
Revision 1.22: January 30, 2017  
Revision 1.23: July 21, 2017  
Revision 1.24: May 16, 2018  
Revision 1.25: June 12, 2018  
Revision 1.26: April 25, 2019  
Revision 1.27: October 17, 2019  
Revision 1.28: April 7, 2020  
Revision 1.29: December 7, 2020  
Revision 1.30: February 28, 2021  
Revision 1.31: July 26, 2021  
Revision 1.32: July 06, 2022  
Revision 1.33: November 07, 2022  
Revision 1.34: December 12, 2022  
Revision 1.35: January 13, 2024

Edited and Published by:

ESPEC NORTH AMERICA  
4141 Central Parkway  
Hudsonville, MI 49426

Telephone: 616-896-6100

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