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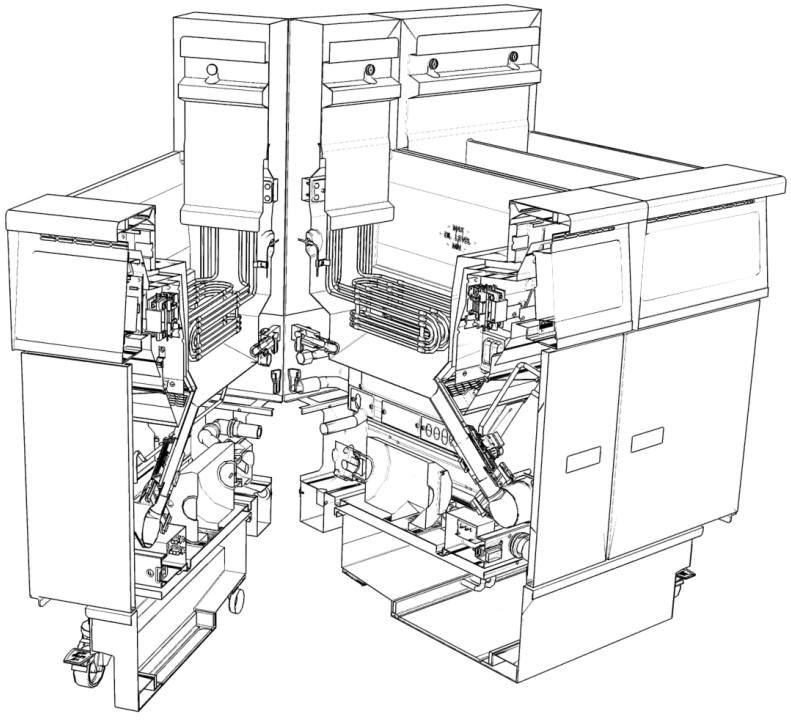
PITCO®

McDonald's®

Technical Service and Exploded Parts For Electric Fryers Covering Models MEII, ME2 Full and Split



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L22-233 Rev 1 (04/03)

WARNING! FIRE HAZARD

THE OIL LEVEL SHOULD NOT FALL BELOW THE MINIMUM INDICATED LEVEL AT ANY TIME. THE USE OF OLD OIL CAN BE DAGEROUS AS IT WILL HAVE A REDUCED FLASH-POINT AND BE MORE PRONE TO SURGE BOILING.

WARNING

INSTALLATION AND ALL CONNECTIONS MUST BE MADE ACCORDING TO NATIONAL AND LOCAL REGULATIONS AND CODES IN FORCE.

WARNING

A COUNTRY APPROVED ALL POLE CIRCUIT BREAKER WITH A MINIMUM OPEN CONTACT GAP OF 3mm MUST BE USED FOR PROPER INSTALLATION.

WARNING

THE FRYER IS NOT JET STREAM APPROVED. DO NOT CLEAN THE APPLIANCE WITH A WATER JET.

NOTICE

INSTALLATION SHOULD ONLY BE DONE BY A COMPETENT SERVICE TECHNICIAN. THE MODEL & SERIAL NUMBER, AND ELECTRICAL REQUIREMENTS STAMPED INTO THE DATA PLATE, LOCATED ON THE INSIDE PANEL OF THE DOOR.

NOTICE

THIS APPLIANCE IS INTENDED FOR PROFESSIONAL USE ONLY, AND AS SUCH, SHOULD BE OPERATED BY FULLY TRAINED PERSONNEL.

NOTICE

IT IS RECOMMENDED THAT THIS MACHINE BE INSPECTED BY A QUALIFIED TECHNICIAN ON A YEARLY BASIS.

WARNING

THE POWER SUPPLY MUST BE DISCONNECTED SERVICING OR CLEANING THE UNIT.

WARNING

SHORTENING, WHEN IT IS AT OPERATING TEMPERATURES, IS VERY HOT AND DANGEROUS! USE EXTREME CAUTION WHEN HANDLING! USE PROPER PROTECTIVE GEAR SUCH AS INSULATED GLOVES, APRONS, FACE SHIELD, AND SLEEVES WHEN HANDLING HOT SHORTENING. DO NOT ATTEMP TO MOVE MACHINE THAT HAS HOT OIL IN IT. ALLOW TO COOLTO ROOM TEMPERATURE OR DRAIN THE OIL INTO A SUITABLE CONTAINER BEFORE MOVING THE FRYER.

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Table of Contents

Chapter 1: HOW DOES IT WORK?

The McDonalds Electric II fryer components function in specific order of operation. Knowing and understanding the sequence of fryer and components operation will enable you to diagnose equipment failure more accurately.

Heating System

Power to the machine is turned ON:

- If Fuse F1 on the Relay board is good, the A.C. light will illuminate. The computer is supplied with 24VAC and, if the drain valve handle is closed, the proximity switch will supply 24 VAC to the DVI (drain valve interlock) Input at the computer.
- The computer is turned ON:
- The side on relay will be energized, closing the circuit and the S.O. light on the Relay Board will illuminate. If the hi limit is NOT tripped the safety (side on) contactor will energize.
- Computer calls for heat:
- The 24 VDC "heat demand" relay will energize supplying the heat demand contactor with 24 VAC and the H.D. light on the Relay Board will illuminate. This will also supply the computer with a heat feedback signal.

Hi Limit System:

- If the hi limit trips, it causes the side on and heat demand contactors to lose 24VAC supply and the heat feed back loses 24VAC. The computer will display IGNITION FAILURE or HEAT FAIL. After the hi limit resets (unit cools to 375°F ± 20°F) the computer will have to be turned off and back on for the unit to heat.

Hood Relay System: U.S./Canada units only

- There is one Hood Relay (K6) per "battery" of fryers (located on rear bottom brace of left hand fryer), it is wired in parallel to every computer (both sides of a twin). When any side of any computer is turned on this relay energizes (turning on the hood) and will stay energized until all of the computers are turned off.

Filter System:

- Opening the RED return valve handle will close the proximity switch causing the "pump run" relay to be energized. The pump motor will begin to run. Closing the return valve handle will de-energize the relay and the pump motor will stop running.

- The pump system is equipped with a circuit breaker which will de-energize the system and the heat tape in the event of overcurrent. The circuit breaker switch must be in the ON position for the pump and heat tape to operate.

- The return piping system may be provided with optional heat tape to prevent solidification of solid shortening. The heat tape is low wattage and is on constantly to maintain liquid shortening in the line.

Chapter 2: COMPONENT TROUBLESHOOTING:

Probe:

TEMP °F/°C	RESISTANCE OHMΩ	TEMP °F/°C	RESISTANCE OHMΩ
60/16	139,055	330/166	1,192
80/27	84,644	335/168	1,123
100/38	53,146	340/171	1,058
120/49	34,328	345/174	998
140/60	22,755	350/177	942
160/71	15,446	355/179	890
180/82	10,716	360/182	841
200/93	7,586	365/185	795
210/99	6,427	370/188	752
220/104	5,470	375/191	712
240/116	4,013	380/193	675
260/127	2,991	385/196	640
280/138	2,262	390/199	607
300/149	1,734	395/202	576
320/160	1,347	400/204	547
325/163	1,267		

The resistance of the probe will change as the temperature changes. The resistance will decrease as the temperature rises. The lower the temperature the greater the resistance change will be per degree of temperature change, as the temperature approaches the working range of the probe, the resistance change will become more linear.
If the probe is suspect, check its resistance and the oil/air temperature at which it was taken. Compare these

values on the chart below.
If the probe returns an open circuit or 0 Ohms reading it should be replaced. If the resistance varies more than 30 Ohms when being checked between 325-375°F the probe will give a false temperature reading on the computer and should be calibrated (up to 10°F) or replaced. However, it will continue to operate at a slightly higher or lower temperature.

Allow the oil to cool and check the probe resistance at a lower temperature. As can be seen from the chart a greater variation can be tolerated at a lower temperature.

Heat Demand Contactor:

The heat demand contactor has a 24VAC coil and will energize when the correct voltage is supplied to the coil. When energized, the contacts will close, allowing current to flow through the elements. The coil resistance is 192 ohms out of circuit.

Hi Limits:

The hi - limit switch is a normally closed switch until the temperature at the hi-limit bulb reaches 425°F ± 20°F.
In order to test this switch it will be necessary to utilize the temperature control hi-limit feature. Refer to **PM Card FR015** for instructions on how to perform this test.

WARNING
During this test monitor the fryer closely. This test will cause the oil to heat past the normal operating temperature and can cause damage to the machine and its operator if care is not taken.

If the switch does not trip between the prescribed limits it is defective and should be replaced. Once tripped, the switch cannot be reset until the oil has cooled to approximately 375°F ± 20°F. If the switch does not reset after oil has cooled it is defective.
Once the oil has cooled the hi-limit reset button must be pressed to reset the hi-limit relay on CE and export units only.

Drain Valve & Return Valve Switches:

These switches are a magnetically operated proximity switches. When the Drain Valve handle is moved to the open position, the Actuator will move away from the switch causing the switch to open. When the Drain Valve is closed the switch will close.

Opening the RED return valve handle will close the proximity switch causing the "pump on" relay to be energized. The pump will begin to pump. Closing the return valve handle will de-energize the relay and the pump will stop pumping. These switches can also be checked with an Ohm meter. The normal gap between the Actuator and the Sensor switch on the valve handle is $^1/_8$" - $^1/_4$" (3 - 6mm).

Transformer:

Transformers are multiple input voltage 24 volt output voltage and can be checked by reading the input and output voltages. A quick check for 24VAC can be done at the relay board behind the computer. The AC led will be lit if the F1 fuse is good and the board is receiving 24VAC

Elements:

Each Element has three coils inside it, check all element coils out of circuit with an Ohm Meter, the resistance should correspond to the chart below, if the resistance varies more than 5 Ohm the element will need to be changed. Also check for continuity to ground on each end of the suspect element, there should be no continuity to ground.

208 volt elements	18.5 Ohms
220 volt elements	20.7 Ohms
240 volt elements	24.6 Ohms

Safety (Side On) Contactor:

Check the coil with an Ohm Meter, the resistance should be approximately 3 - 6 Ohms out of circuit. If it does not have this resistance it should be changed.

Fryer Trouble Shooting

PROBLEM	POSSIBLE CAUSE	ACTION
Computer will NOT turn ON Display does NOT light	A. No power to the machine B. F1 Fuse blown C. T1A Transformer	A. Check building circuit breaker, verify power cord is plugged in B. Check F1A Fuse. Replace if defective C. Check voltage in and out of T1A
Computer shows "IGNITION FAILURE" or "HEAT FAIL" and machine does NOT heat.	A. Hi limit tripped B. Heat demand relay C. Relay board	A. Once the oil temp has gone below 375°F $\pm$ 20°, the Hi-limit should reset automatically, if not, replace Hi-limit B. Check & replace if defective C. Check & replace if defective
Machine is heating slowly	A. Side On contactor B. Heat Demand contactor C. Element D. Loss of power on one leg of 3 phase input power	A. Check & replace if defective B. Check & replace if defective C. Check & replace if defective D. Check input power. Repair or call a qualified electrician
Oil is hotter or colder than computer /controller displays	A. Temperature calibration B. Probe C. Probe wiring terminals	A. Adjust temperature offset up to $\pm$10°F B. Check & replace if defective C. Clean or repair terminals
Computer displays "DRAINING" or "TURN OFF"	A. Blue drain valve not fully closed B. Sensor switch C. Incorrect switch gap/alignment	A. Check position of handle B. Switch may be loose or have loose wires, replace if defective C. Check gap/alignment, replace if defective
Computer heat demand lights are lit, machine does not heat. HD & SO lights on relay board are lit.	A. Side on contactor B. Heat demand contactor C. Unit not getting 3 phase power	A. Check & replace if defective B. Check & replace if defective C. Check circuit breaker, is 3 phase power cord plugged in all the way
Computer displays "PROBE FAILURE"	A. Shorted probe B. Open probe C. Probe wiring terminals	A. Check probe & replace if defective B. Check probe & replace if defective C. Clean or repair terminals

Filter Trouble Shooting

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PROBLEM	POSSIBLE CAUSE	ACTION
Red return handle is pulled out, but no pump sound can be heard	A. Red return handle not completly open B. Filter circuit breaker may be tripped or in the off position C. Filter motor thermal overload may be tripped D. Sensor switch may be loose or defective E. Power cord unplugged or loose	A. Pull on red return handle to make sure valve is completly open B. Reset the circuit breaker or press it to the on position C. Push the red reset button on the end of the motor D. Check that the switch is tight and that it has the correct gap. Replace if defective E. Check the power cord at the fryer entrance box and at the pump box and make sure that the power cords are plugged in and /or pushed in all the way
Drain valve is closed, computer has been reset, but computer still displays "DRAINING"	A. Blue drain valve not fully closed B. Sensor switch C. Incorrect switch gap/alignment	A. Check position of handle B. Switch may be loose or have loose wires, replace if defective C. Check gap/alignment, replace if defective
Oil is returning to the vat slowly or not at all	A. Dirty filter paper B. Strainer cap dirty C. Filter pan not pushed in completely D. O-rings not sealing on pick up tube	A. Change filter paper B. Remove strainer cap and clean it C. Push filter pan in D. Check & replace if defective
Air bubbles are in the oil being returned to the vat	A. Strainer cap not tight B. Stainer cap not in pick up tube C. Filter pan not pushed in completely D. O-rings not sealing on pick up tube	A. Tighten strainer cap B. Install strainer cap C. Push filter pan in D. Check & replace if defective
Drain valve is open, the oil is draining slowly or not at all	A. Drain valve is not fully open B. Drain line is plugged with debris	A. Apply a little more pressure to the drain valve handle to check that the drain valve is fully open B. Use the clean out rod to clear the drain valve opening. If this does not clear the blockage, close the drain valve, and call for service

Relay Board Component Explanation

Fuse:

F1 - If fuse is blown, A.C. will not be lit.

Trouble Shooting Lights:

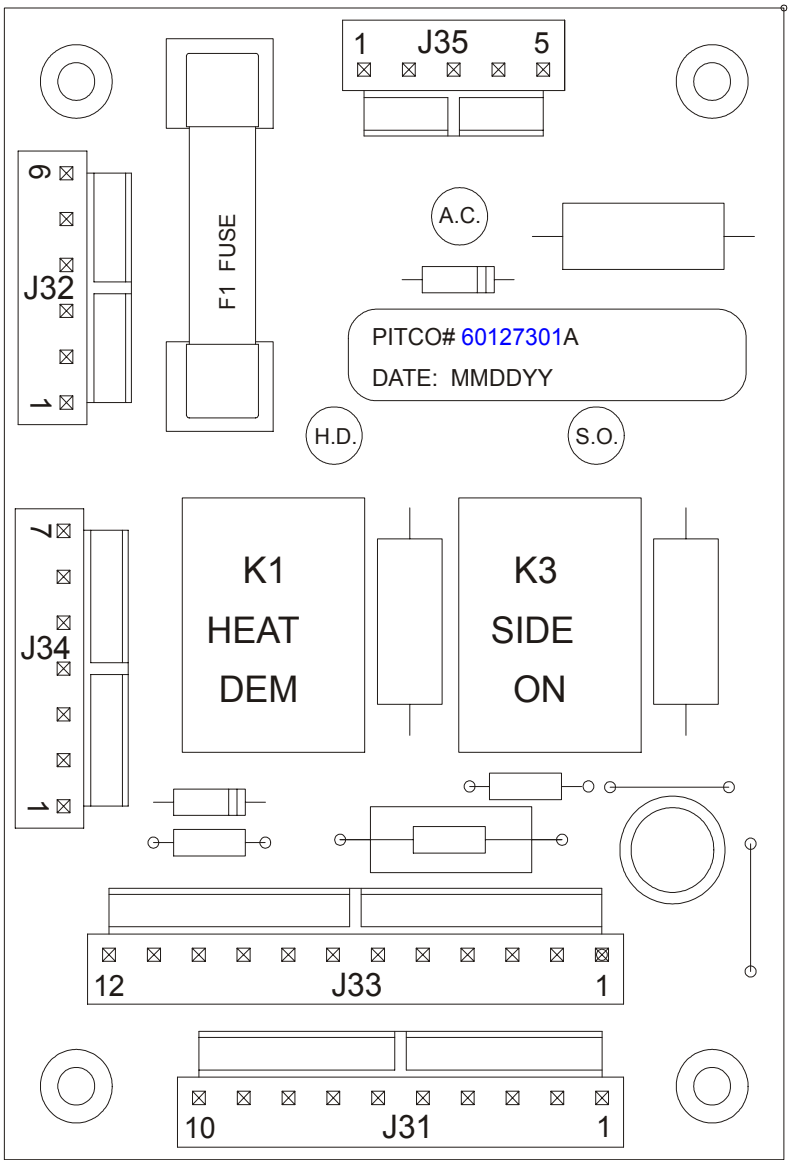
A.C. - When lit, F1 Fuse and T1 Transformer are good.
S.O. - When lit, A1 Computer is on and K10 Contactor should be energized.
H.D. - When lit, A1 Computer is on and calling for heat, K11 Contactor should be energized

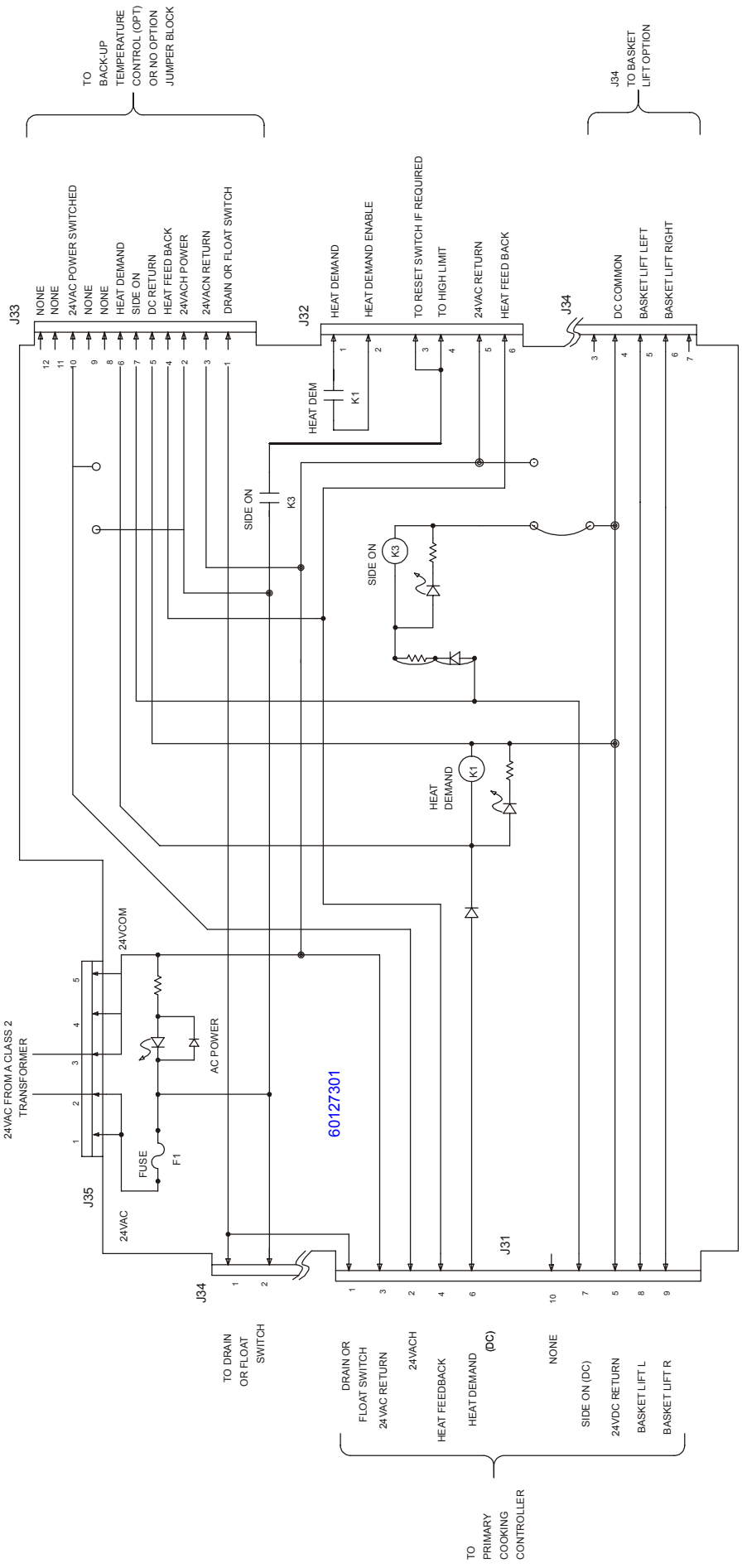
Relays:

K1 - Heat Demand Relay, will be energized when A1 Computer calls for heat and when H.D. is lit.
K3 - Side On Relay, will be energized when A1 Computer is on and A.C. is lit.

Connectors:

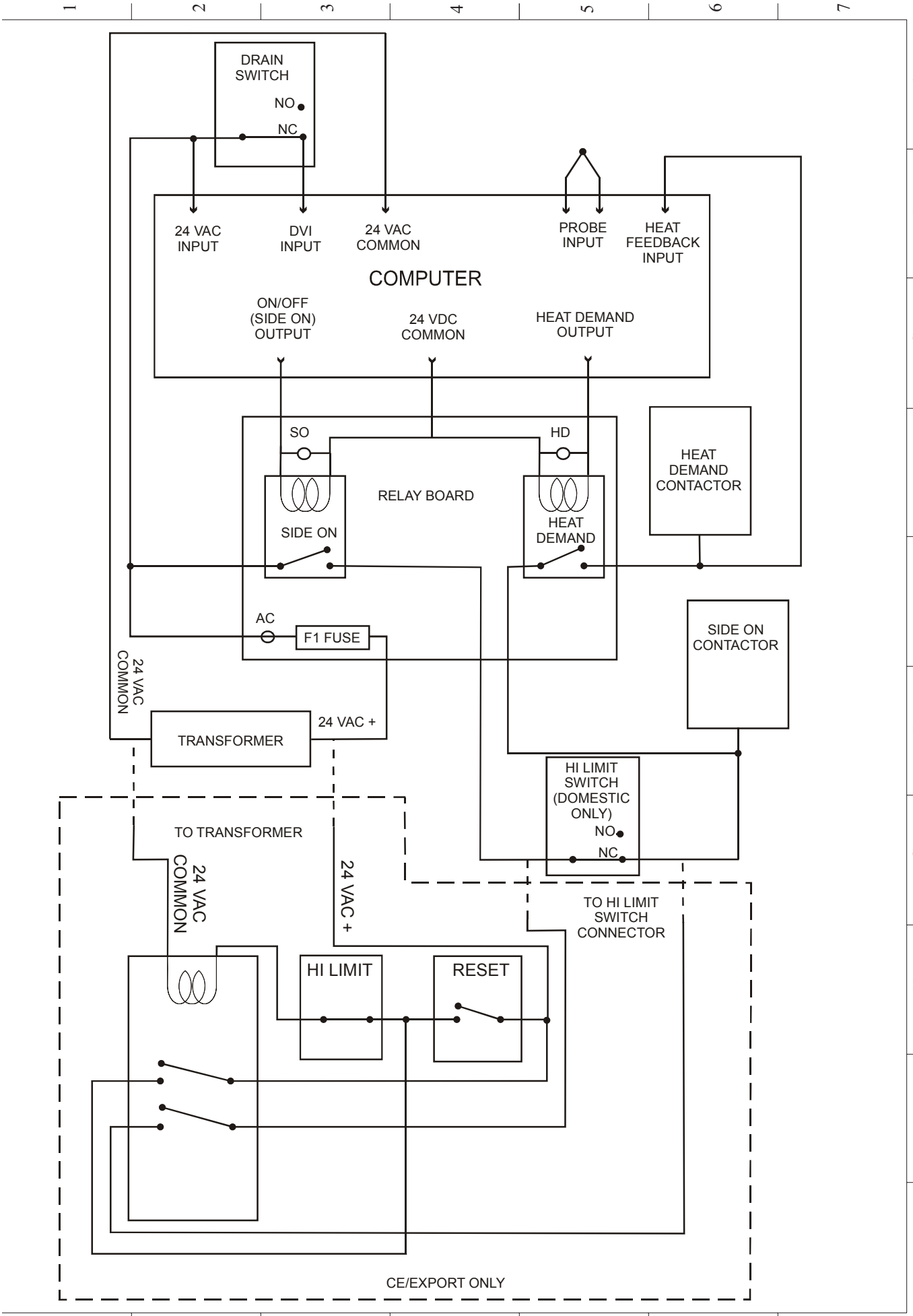
J31 - Connects to A1 Computer
J32 - To Side On and Heat Demand Contactors and Heat Feed Back.
J33 - To 24VAC jumper harness.
J34 - To Drain Switch and optional Basketlifts
J35 - Input voltage from transformer




TO BACK-UP TEMPERATURE CONTROL (OPT) OR NO OPTION JUMPER BLOCK
J34 TO BASKET LIFT OPTION
J33
NONE
NONE
24VAC POWER SWITCHED
NONE
NONE
HEAT DEMAND
SIDE ON
DC RETURN
HEAT FEED BACK
24VACH POWER
24VACN RETURN
DRAIN OR FLOAT SWITCH
J32
HEAT DEMAND
HEAT DEMAND ENABLE
TO RESET SWITCH IF REQUIRED
TO HIGH LIMIT
24VAC RETURN
HEAT FEED BACK
J34
DC COMMON
BASKET LIFT LEFT
BASKET LIFT RIGHT
HEAT DEM
K1
SIDE ON
K3
SIDE ON
K3
HEAT DEMAND
K1
24VCOM
AC POWER
24VAC FROM A CLASS 2 TRANSFORMER
FUSE
F1
J35
24VAC
60127301
J31
J34
TO DRAIN OR FLOAT SWITCH
DRAIN OR FLOAT SWITCH
24VAC RETURN
24VACH
HEAT FEEDBACK
HEAT DEMAND (DC)
NONE
SIDE ON (DC)
24VDC RETURN
BASKET LIFT L
BASKET LIFT R
TO PRIMARY COOKING CONTROLLER

Relay Board

Schematics

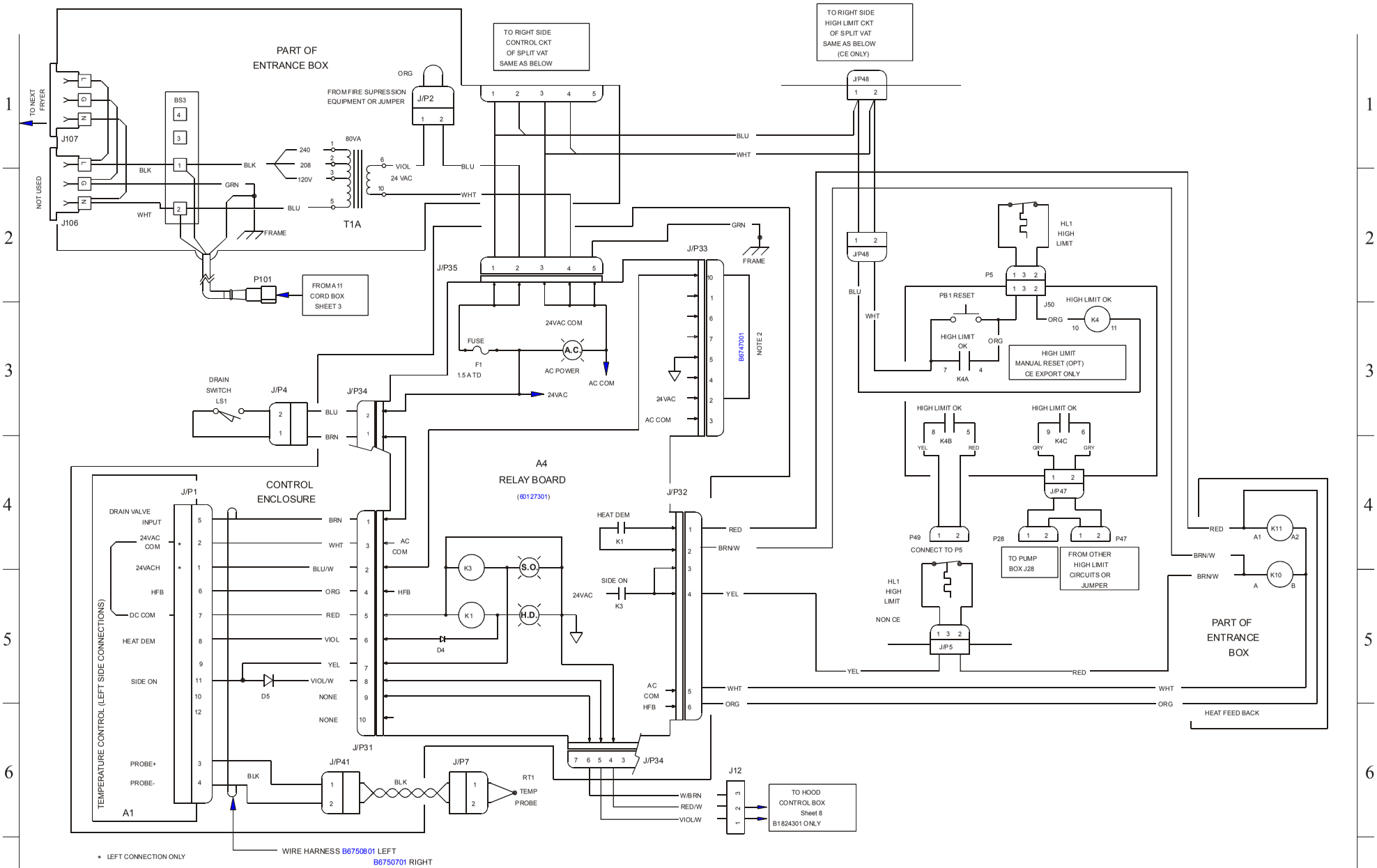

DRAIN SWITCH
NO
NC
24 VAC INPUT
DVI INPUT
24 VAC COMMON
PROBE INPUT
HEAT FEEDBACK INPUT
COMPUTER
ON/OFF (SIDE ON) OUTPUT
24 VDC COMMON
HEAT DEMAND OUTPUT
SO
HD
RELAY BOARD
SIDE ON
HEAT DEMAND
HEAT DEMAND CONTACTOR
AC
F1 FUSE
24 VAC COMMON
TRANSFORMER
24 VAC +
SIDE ON CONTACTOR
HI LIMIT SWITCH (DOMESTIC ONLY)
NO
NC
TO TRANSFORMER
24 VAC COMMON
24 VAC +
TO HI LIMIT SWITCH CONNECTOR
HI LIMIT
RESET
CE/EXPORT ONLY

FRYER REPLACEMENT PARTS			
REF	DESCRIPTION	LOCATION	PART NO.
A1	COMPUTER COOKING CNTRL SINGLE/DUAL McDS	SHEET 2, J6	60137701
A4	CNTRL, RELAY BOARD 24V CLASS 2	SHEET 2, F4	60127301
A5	CNTRL, PUMP BOX ASSY 115V/50-60HZ	SHEET 4, F4	B6673001
	CNTRL, PUMP BOX ASSY 208V/50-60HZ	SHEET 6, F4	B6673005
	CNTRL, PUMP BOX ASSY 230V/50-60HZ	SHEET 6, F4	B6673002
	CNTRL, PUMP BOX ASSY 240V/50HZ	SHEET 6, F4	
A11	CORD BOX DOMESTIC WITH NEMA L21-20P PLUG MDG	SHEET 8, B4	B1824301
	CORD BOX EXPORT CE W/IEC1302 PLUG MDG	SHEET 8, I4	B1824302
	CORD BOX EXPORT NO PLUG	SHEET 8, I4	B1824303
	CORD BOX DOMESTIC NO HOOD CNTRL 115V MDG	SHEET 8, E5	B1824304
T1A	XFMR, 120-208-240V/24VAC 80VA CLASS 2	SHEET 2, H2	PP10429
F1	FUSE 1.5A 250V TIME DELAY CERAMIC	SHEET 2, G3	60132702
HL1	SWITCH, HIGH LIMIT SELF RESET	SHEET 2, DOM C5, CE C2	60141201
RT1	PROBE, NTC THERMISTOR GAS	SHEET 2, G6	B6700605-C
LS1	SWITCH PROXIMITY MAGNETIC	SHEET 2, I4	B5305001
	SWITCH ACTUATOR MAGNETIC	SHEET 2, I4	PP10263
K4	RELAY, 3PDT, 10A, 24VAC W/MNTG TABS	SHEET 2, B3	60126001
K6	RELAY SPST-NO 30A/250VAC, 24VDC COIL	SHEET 8, B3	60137301
K10	CONTACTOR, 3P, 40A, 24VAC DEF PURPOSE	SHEET 2, A5	PP10560
K11	CONTACTOR, 3P, 50A, 24VAC IEC	SHEET 2, A4	60139201

TABLE 2: (A1) McDONALDS CONTROLLER CONNECTIONS			
PIN#	I/O TYPE	LEFT SIDE	RIGHT SIDE
1	AC POWER	24VACH	NONE
2		24VAC COM (FRAME GND)	NONE
3	TEMPERATURE	PROBE +	PROBE +
4		PROBE -	PROBE -
5	24VAC INPUT	DRAIN VALVE(DVI)	DRAIN VALVE(DVI)
6	24VAC INPUT	HEAT FEED BACK	HEAT FEED BACK
7	24VDC COM	DC RETURN	DC RETURN
8	24VDC OUT	HEAT DEMAND	HEAT DEMAND
9		NONE	NONE
10		NONE	NONE
11	24VDC OUT	SIDE ON	SIDE ON
12		NONE	NONE

NOTES:

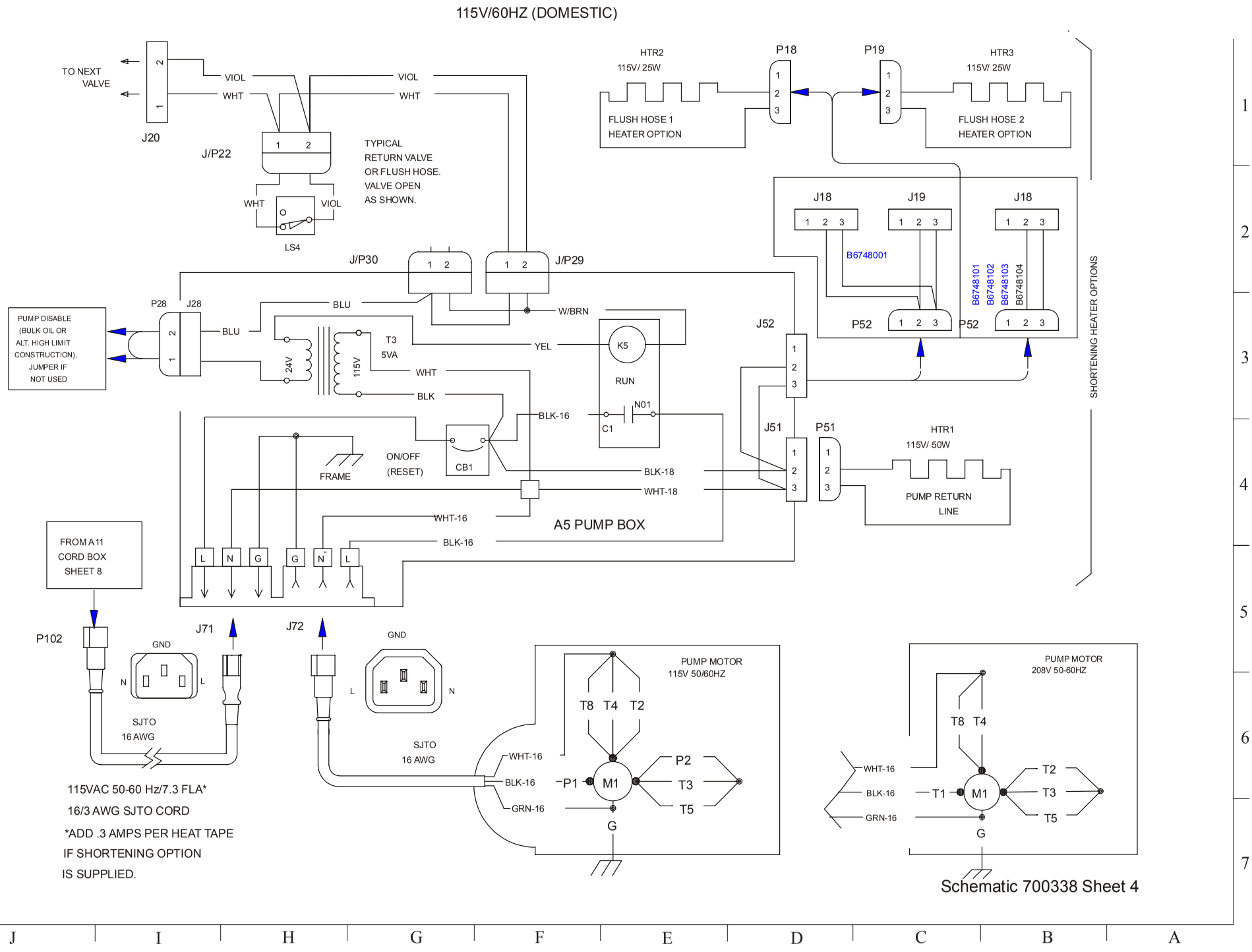
1. LEFT SIDE OF SPLIT VAT, OR SINGLE VAT CONTROL CIRCUIT SHOWN. RIGHT SIDE OF SPLIT VAT IS IDENTICAL UP TO P1. SEE TABLE 2.
2. OPTIONAL BACKUP T-STAT (A3) NOT AVAILABLE. JUMPER WIRE P33-10 TO P33-2 IS REQUIRED (B6747001).
3. CONTROL WIRING IS UL TYPE AWM, 300V, COLOR SHOWN. ALL WIRE IS 18AWG UNLESS NOTED.
4. DRAIN VALVE SWITCH IS CLOSED WHEN VALVE IS CLOSED.
5. LINE CORD CABLES ARE TYPE SJTO. AMERICAN WIRE GAUGE (AWG) AS SHOWN.
6. CONTROL TRANSFORMER IS POWERED BY SEPARATE SINGLE PHASE POWER SOURCE (J101). VOLTAGE DEPENDS ON CORD BOX OPTION (A11) INSTALLED. ONE CORD BOX PER FRYER BATTERY. SEE SHEET 3.
7. FILTER PUMP (M1), AND PUMP BOX (A5), ARE POWERED BY SEPARATE SINGLE PHASE POWER SOURCE (J102). VOLTAGE DEPENDS ON CORD BOX OPTION (A11) INSTALLED. ONE CORD BOX PER FRYER BATTERY. SEE SHEET 3.


PART OF
ENTRANCE BOX
TO NEXT
FRYER
J107
J106
NOT USED
BS3
BLK
GRN
WHT
FRAME
240
208
120V
80VA
T1A
VIOL
24 VAC
ORG
FROM FIRE SUPRESSION
EQUIPMENT OR JUMPER
J/P2
BLU
WHT
TO RIGHT SIDE
CONTROL CKT
OF SPLIT VAT
SAME AS BELOW
TO RIGHT SIDE
HIGH LIMIT CKT
OF SPLIT VAT
SAME AS BELOW
(CE ONLY)
J/P48
P101
FROM A11
CORD BOX
SHEET 3
J/P35
J/P33
FUSE
F1
1.5 A TD
24VAC COM
A.C.
AC POWER
AC COM
24VAC
B6747001
NOTE 2
HL1
HIGH
LIMIT
P5
PB1 RESET
J50
HIGH LIMIT OK
K4
HIGH LIMIT
OK
K4A
HIGH LIMIT
MANUAL RESET (OPT)
CE EXPORT ONLY
DRAIN
SWITCH
LS1
J/P4
J/P34
CONTROL
ENCLOSURE
A4
RELAY BOARD
(60127301)
J/P1
J/P32
DRAIN VALVE
INPUT
24VAC
COM
24VACH
HFB
DC COM
HEAT DEM
SIDE ON
PROBE+
PROBE-
TEMPERATURE CONTROL (LEFT SIDE CONNECTIONS)
A1
BRN
WHT
BLU/W
ORG
RED
VIOL
YEL
VIOL/W
NONE
K3
S.O.
K1
H.D.
D4
D5
HEAT DEM
K1
SIDE ON
K3
24VAC
RED
BRN/W
YEL
WHT
ORG
HEAT FEED BACK
HIGH LIMIT OK
K4B
K4C
J/P47
P49
P28
P47
CONNECT TO P5
TO PUMP
BOX J28
FROM OTHER
HIGH LIMIT
CIRCUITS OR
JUMPER
HL1
HIGH
LIMIT
NON CE
J/P5
PART OF
ENTRANCE
BOX
K11
K10
J/P41
J/P7
J/P31
J/P34
J12
BLK
RT1
TEMP
PROBE
W/BRN
RED/W
VIOL/W
TO HOOD
CONTROL BOX
Sheet 8
B1824301 ONLY
* LEFT CONNECTION ONLY
WIRE HARNESS B6750801 LEFT
B6750701 RIGHT
Schematic 700338 Sheet 2
L22-233 Rev 1 (04/03)

FILTER PUMP REPLACEMENT PARTS				
ITEM	VOLTAGE	DESCRIPTION	LOCATION	PART NO.
M1	208V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 4, B6	60130810
	120V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 4, E7	60130806
	230V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 6, E7	60130806
	240V/50Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 6, B6	60130807
CB1	120V-50/60Hz	CKT BRKR,10 AMP SINGLE POLE	SHEET 4, G4	60077901
	230V-50/60Hz	CKT BRKR, 5 AMP TWO POLE	SHEET 6. F4	60078502
	240V/50Hz			
T3	120V-50/60Hz	XFMR, 120/24VAC 5VA	SHEET 4, H3	60130301
	230V-50/60Hz	XFMR, 240/24 VAC 5VA	SHEET 6, G3	60130302
	240V-50Hz			
K5	120V-50/60Hz	RELAY, 24VAC, 30A SPST	SHEET 4, E3	PP11058
	230V-50/60Hz	RELAY, 24VAC, 30A DPST	SHEET 6, E3	60104701
	240V-50Hz			
F2	ALL	FUSE 0.2A 250V TIME DELAY CERAMIC	SHEET 6, H3	60132701
FH2		FUSE HOLDER, IN LINE, .25 X 1.25	SHEET 6, H3	PP10765

SHORTENING HEATER OPTIONS REPLACEMENT PARTS				
ITEM	VOLTAGE	DESCRIPTION	LOCATION	PART NO.
HTR1	120-50/60Hz	HEATER TAPE 1/2X 72", 50W	SHEET 4, C4	60133503
	230-50/60Hz	HEATER TAPE 1/2X 72", 50W	SHEET 6, B4	60133504
	240/50Hz			
HTR2,3	120-50/60Hz	HEATER TAPE 1/2X 33", 25W	SHEET 4, E1, B1	60133501
	230-50/60Hz	HEATER TAPE 1/2X 33", 25W	SHEET 4, E1, B1	60133502
	240/50Hz			

Schematic 700338 Sheet 3

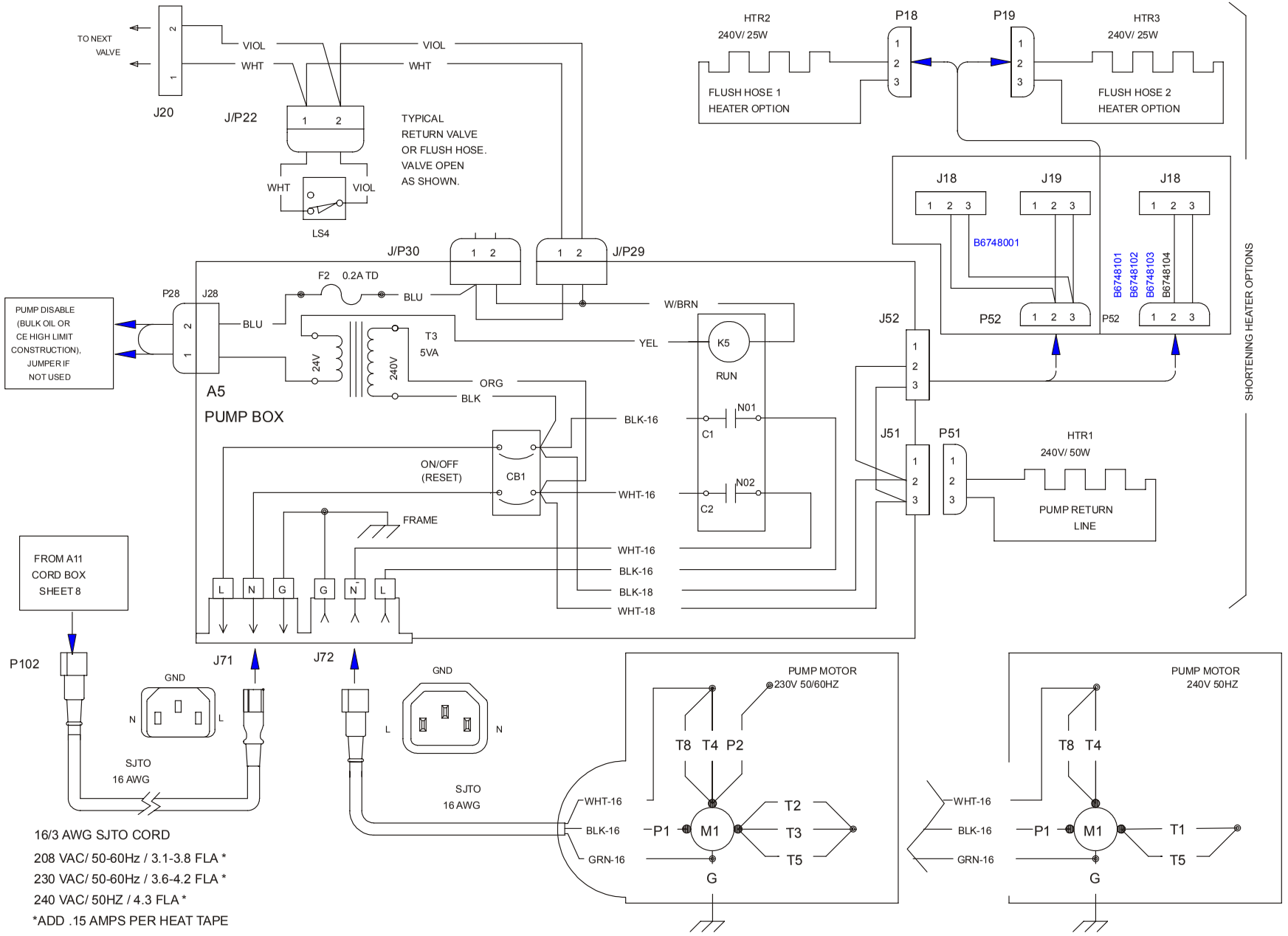

115V/60HZ (DOMESTIC)
TO NEXT VALVE
J20
VIOL
WHT
J/P22
TYPICAL RETURN VALVE OR FLUSH HOSE. VALVE OPEN AS SHOWN.
LS4
HTR2
115V/ 25W
FLUSH HOSE 1 HEATER OPTION
P18
P19
HTR3
115V/ 25W
FLUSH HOSE 2 HEATER OPTION
J18
J19
B6748001
B6748101
B6748102
B6748103
B6748104
P52
SHORTENING HEATER OPTIONS
J/P30
J/P29
W/BRN
PUMP DISABLE (BULK OIL OR ALT. HIGH LIMIT CONSTRUCTION), JUMPER IF NOT USED
P28
J28
BLU
T3
5VA
24V
115V
YEL
WHT
BLK
K5
RUN
N01
C1
BLK-16
J52
J51
P51
HTR1
115V/ 50W
PUMP RETURN LINE
FRAME
ON/OFF (RESET)
CB1
BLK-18
WHT-18
WHT-16
BLK-16
A5 PUMP BOX
L
N
G
N
L
FROM A11 CORD BOX SHEET 8
P102
J71
J72
GND
SJTO 16 AWG
115VAC 50-60 Hz/7.3 FLA*
16/3 AWG SJTO CORD
*ADD .3 AMPS PER HEAT TAPE IF SHORTENING OPTION IS SUPPLIED.
PUMP MOTOR 115V 50/60HZ
T8 T4 T2
P1
M1
P2
T3
T5
G
GRN-16
PUMP MOTOR 208V 50-60HZ
T8 T4
T1
T2
Schematic 700338 Sheet 4
L22-233 Rev 1 (04/03)

FILTER PUMP REPLACEMENT PARTS				
ITEM	VOLTAGE	DESCRIPTION	LOCATION	PART NO.
M1	208V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 4, B6	60130810
	120V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 4, E7	60130806
	230V-50/60Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 6, E7	60130806
	240V/50Hz	MOTOR AND PUMP 1/3HP 5GPM	SHEET 6, B6	60130807
CB1	120V-50/60Hz	CKT BRKR,10 AMP SINGLE POLE	SHEET 4, G4	60077901
	230V-50/60Hz	CKT BRKR, 5 AMP TWO POLE	SHEET 6. F4	60078502
	240V/50Hz			
T3	120V-50/60Hz	XFMR, 120/24VAC 5VA	SHEET 4, H3	60130301
	230V-50/60Hz	XFMR, 240/24 VAC 5VA	SHEET 6, G3	60130302
	240V-50Hz			
K5	120V-50/60Hz	RELAY, 24VAC, 30A SPST	SHEET 4, E3	PP11058
	230V-50/60Hz	RELAY, 24VAC, 30A DPST	SHEET 6, E3	60104701
	240V-50Hz			
F2	ALL	FUSE 0.2A 250V TIME DELAY CERAMIC	SHEET 6, H3	60132701
FH2		FUSE HOLDER, IN LINE, .25 X 1.25	SHEET 6, H3	PP10765

SHORTENING HEATER OPTIONS REPLACEMENT PARTS				
ITEM	VOLTAGE	DESCRIPTION	LOCATION	PART NO.
HTR1	120-50/60Hz	HEATER TAPE 1/2X 72", 50W	SHEET 4, C4	60133503
	230-50/60Hz	HEATER TAPE 1/2X 72", 50W	SHEET 6, B4	60133504
	240/50Hz			
HTR2,3	120-50/60Hz	HEATER TAPE 1/2X 33", 25W	SHEET 4, E1, B1	60133501
	230-50/60Hz	HEATER TAPE 1/2X 33", 25W	SHEET 4, E1, B1	60133502
	240/50Hz			

Schematic 700338 Sheet5

208, 220-230V/50-60HZ OR 240V/50HZ (EXPORT AND CE)



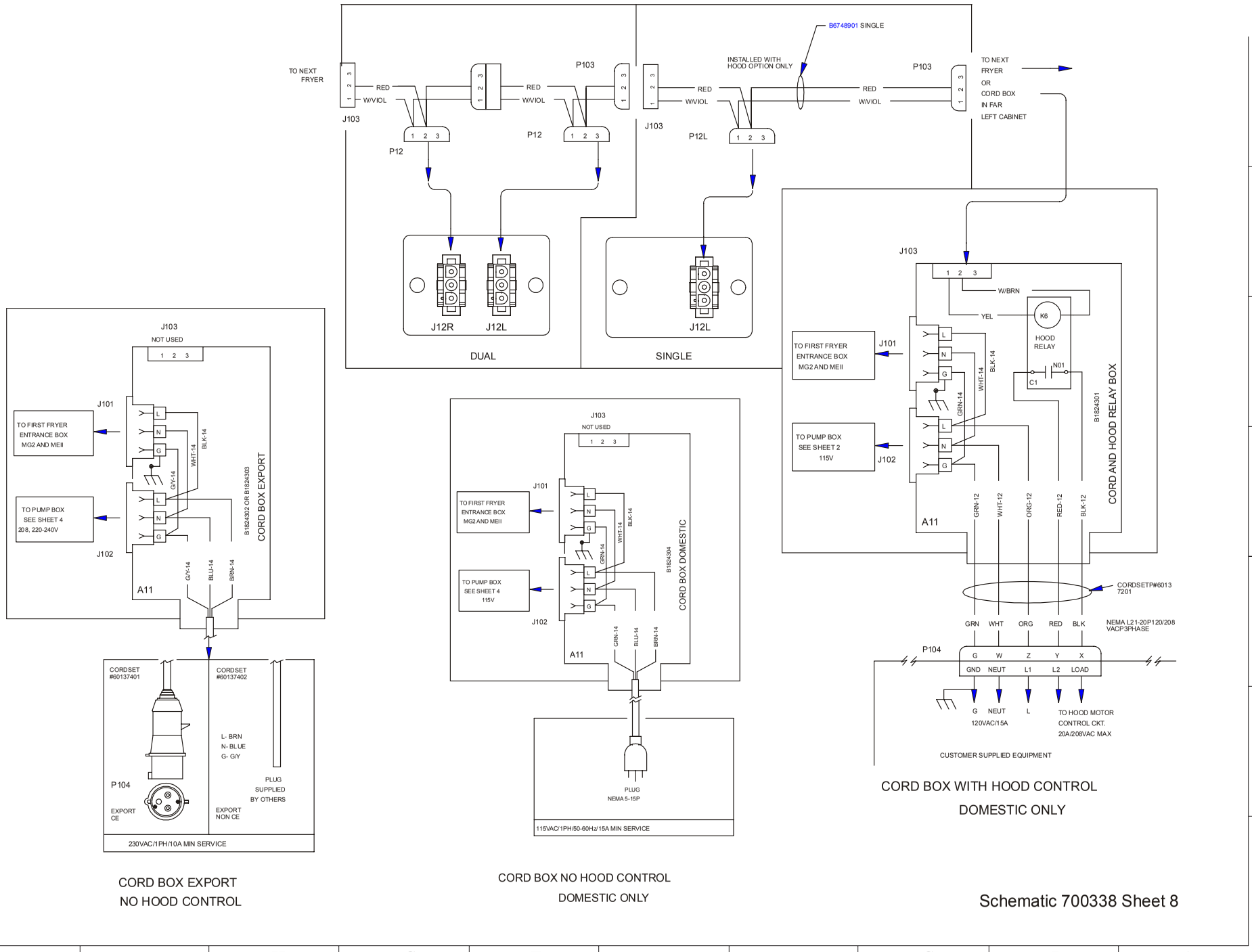
Schematic 700338 Sheet 6

L22-233 Rev 1 (04/03)

TABLE 1			
PART NO.	DESCRIPTION	P/N REV	P/N ECN
700338	SCHEM. ELEC McDONALDS SV OR FV ALL MEII	SEE TITLE BLOCK	
700338-1	LBL, WIRING CNTRL TYPICAL 24V MEII	A	10952
700338-2	LBL, 3PH DELTA SINGLE TYPICAL MEII	A	10952
700338-3	LBL, 3PH DELTA DUAL TYPICAL MEII	A	10952
700338-4	LBL, 3PH WYE SINGLE TYPICAL MEII	A	10952
700338-5	LBL, 3PH WYE DUAL TYPICAL MEII	A	10952
LBL, WIRING FLTR PUMP 208/230V/240V MG2, MEII		USE 700334-2	
LBL, WIRING FLTR PUMP 115V/50-60HZ MG2, MEII		USE 700334-3	
LBL, CORD BOX DOM W/HOOD CNTRL 208V MG2, MEII		USE 700334-4	
LBL, CORD BOX EXPORT 230V MG2, MEII		USE 700334-5	
LBL, CORD BOX NO HOOD CNTRL 115V MG2, MEII		USE 700334-6	

FRYER REPLACEMENT PARTS			
REF	DESCRIPTION	LOCATION	PART NO.
A1	COMPUTER COOKING CNTRL SINGLE/DUAL McDS	SHEET 2, J6	60137701
A4	CNTRL, RELAY BOARD 24V CLASS 2	SHEET 2, F4	60127301
A5	CNTRL, PUMP BOX ASSY 115V/50-60HZ	SHEET 4, F4	B6673001
	CNTRL, PUMP BOX ASSY 208V/50-60HZ	SHEET 6, F4	B6673005
	CNTRL, PUMP BOX ASSY 230V/50-60HZ	SHEET 6, F4	B6673002
	CNTRL, PUMP BOX ASSY 240V/50HZ	SHEET 6, F4	
A11	CORD BOX DOMESTIC WITH NEMA L21-20P PLUG MDG	SHEET 8, B4	B1824301
	CORD BOX EXPORT CE W/IEC1302 PLUG MDG	SHEET 8, I4	B1824302
	CORD BOX EXPORT NO PLUG	SHEET 8, I4	B1824303
	CORD BOX DOMESTIC NO HOOD CNTRL 115V MDG	SHEET 8, E5	B1824304
T1A	XFMR, 120-208-240V/24VAC 80VA CLASS 2	SHEET 2, H2	PP10429
F1	FUSE 1.5A 250V TIME DELAY CERAMIC	SHEET 2, G3	60132702
HL1	SWITCH, HIGH LIMIT SELF RESET	SHEET 2, DOM C5, CE C2	60141201
RT1	PROBE, NTC THERMISTOR GAS	SHEET 2, G6	B6700605-C
LS1	SWITCH PROXIMITY MAGNETIC	SHEET 2, I4	B5305001
	SWITCH ACTUATOR MAGNETIC	SHEET 2, I4	PP10263
K4	RELAY, 3PDT, 10A, 24VAC W/MNTG TABS	SHEET 2, B3	60126001
K6	RELAY SPST-NO 30A/250VAC, 24VDC COIL	SHEET 8, B3	60137301
K10	CONTACTOR, 3P, 40A, 24VAC DEF PURPOSE	SHEET 2, A5	PP10560
K11	CONTACTOR, 3P, 50A, 24VAC IEC	SHEET 2, A4	60139201

Schematic 700338 Sheet 7



CORD BOX EXPORT
NO HOOD CONTROL

CORD BOX NO HOOD CONTROL
DOMESTIC ONLY

CORD BOX WITH HOOD CONTROL
DOMESTIC ONLY

Schematic 700338 Sheet 8

3 PHASE ELECTRICAL SERVICE REQUIREMENTS
FOR MODEL MEII

TABLE 3A: LINE CONNECTION OPTIONS FOR U.S. AND CANADA

LINE CONNECTION	FILTER PUMP	TRANSFORMER	LINE AMPS	SINGLE VAT		SPLIT VAT		
						LEFT SIDE		RIGHT SIDE
VOLTAGE	P/N	P/N	TOTAL HEATER LESS OPTIONS	WIRE OPTION	HTR1-HTR6 P/N	WIRE OPTION	HTR1-HTR3 P/N	HTR4-HTR6 P/N
WIRES & GND	CONNECT	CONNECT-(TAP)			TOTAL HEAT KW		HEAT KW	HEAT KW
LOAD TYPE	VOLTAGE/ AMPS	TAP VOLTS			1B-6D WIRE SIZE		1B-6D WIRE SIZE	1B-6D WIRE SIZE
208 3 PHASE 3 WIRE & GND DELTA	B6730806 SEE NOTE 7 115V 5.6A 50/60Hz	PP10429 NOTE 6 BLK-(2) WHT-(5) 115V 1PH 50/60Hz J102 (A11)	L1-38.9 A L2-38.9 A L3-38.9 A	1	550006609 14.0 KW 10 AWG	3	550006609 8.5 KW 14 AWG	550006609 8.5 KW 14 AWG
240 3 PHASE 3 WIRE & GND DELTA			L1-33.7 A L2-33.7 A L3-33.7 A	1	550006612 14.0 KW 10 AWG	3	550006612 8.5 KW 14 AWG	550006612 8.5 KW 14 AWG
480 3 PHASE 3 WIRE & GND DELTA			L1-16.8 A L2-16.8 A L3-16.8 A	1	550006613 14.0 KW 10 AWG	3	550006613 8.5 KW 14 AWG	550006613 8.5 KW 14 AWG

TABLE 3B: LINE CONNECTION OPTIONS FOR INTERNATIONAL SERIVCES

LINE CONNECTION	FILTER PUMP	TRANSFORMER	LINE AMPS	SINGLE VAT		SPLIT VAT		
						LEFT SIDE		RIGHT SIDE
VOLTAGE	P/N	P/N	TOTAL HEATER LESS OPTIONS	WIRE OPTION	HTR1-HTR6 P/N	WIRE OPTION	HTR1-HTR3 P/N	HTR4-HTR6 P/N
WIRES & GND	CONNECT	CONNECT-(TAP)			TOTAL HEAT KW		HEAT KW	HEAT KW
LOAD TYPE	VOLTAGE/ AMPS	TAP VOLTS			1A-6D WIRE SIZE		1A-6D WIRE SIZE	1A-6D WIRE SIZE
200 3 PHASE 3 WIRE & GND DELTA	60130810 NOTE 7 208V 4A 50Hz	PP10429 NOTE 6 BLK-(2) WHT-(5) 208V 1PH 50/60Hz J102 (A11)	L1-37.4 A L2-37.4 A L3-37.4 A	1	50006609 12.9 KW 10 AWG	3	50006609 6.4 KW 14 AWG	50006609 6.4 KW 14 AWG
220 3 PHASE 3 WIRE & GND DELTA	60130806 NOTE 7 230V 3.4A 50/60Hz		L1-36.7 A L2-36.7 A L3-36.7 A	1	50006610 14.0 KW 10 AWG	3	50006610 7.0 KW 14 AWG	50006610 7.0 KW 14 AWG
346Y/200 3 PHASE 4 WIRE & GND WYE	60130810 NOTE 7 208V 4A 50Hz		L1-21.6 A L2-21.6 A L3-21.6 A	2	50006609 12.9 KW 10 AWG	4	50006609 6.5 KW 14 AWG	50006609 6.5 KW 14 AWG
380Y/220 3 PHASE 4 WIRE & GND WYE	60130806 NOTE 7 230V 3.8A 50/60Hz		L1-21.3 A L2-21.3 A L3-21.3 A	2	50006610 14.0 KW 10 AWG	4	50006610 7.0 KW 14 AWG	50006610 7.0 KW 14 AWG
400Y/230 3 PHASE 4 WIRE & GND WYE		PP10429 NOTE 6 BLK-(1) WHT-(5) 240V 1PH 50/60Hz J102 (A11)	L1-20.2 A L2-20.2 A L3-20.2 A	2	50006611 14.0KW 10 AWG	4	50006611 6.4 KW 14 AWG	50006611 6.4 KW 14 AWG
415Y/240 3 PHASE 4 WIRE & GND WYE	60130807 NOTE 7 240V 3.5A 50Hz		L1-19.5 A L2-19.5 A L3-19.5 A	2	50006612 14.0 KW 10 AWG	4	50006612 7.0 KW 14 AWG	50006612 7.0 KW 14 AWG
440 3 PHASE 3 WIRE & GND DELTA	60130806 NOTE 7 230V 3.8A 50/60Hz		L1-15.4 A L2-15.4 A L3-15.4 A	1	50006613 11.8 KW 14 AWG	3	50006613 5.9 KW 14 AWG	50006613 5.9 KW 14 AWG

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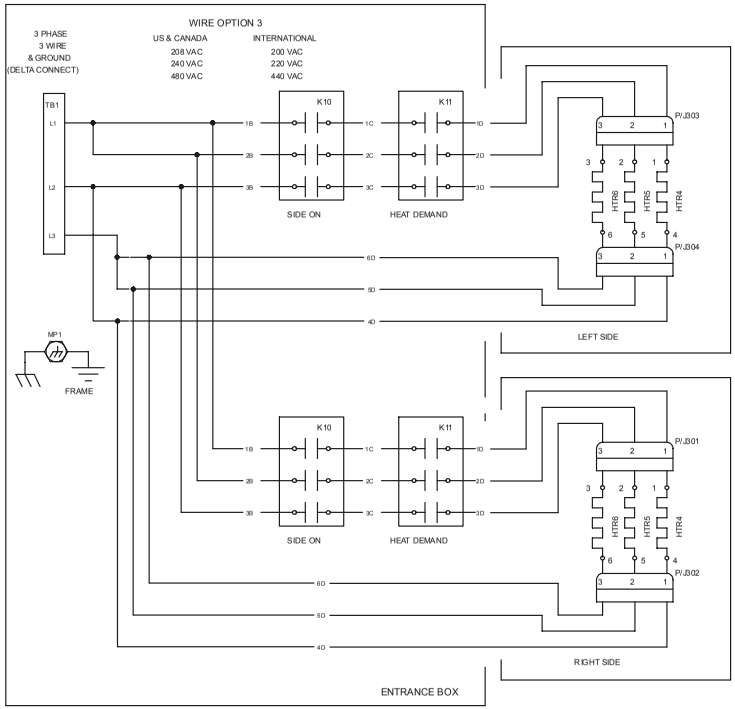
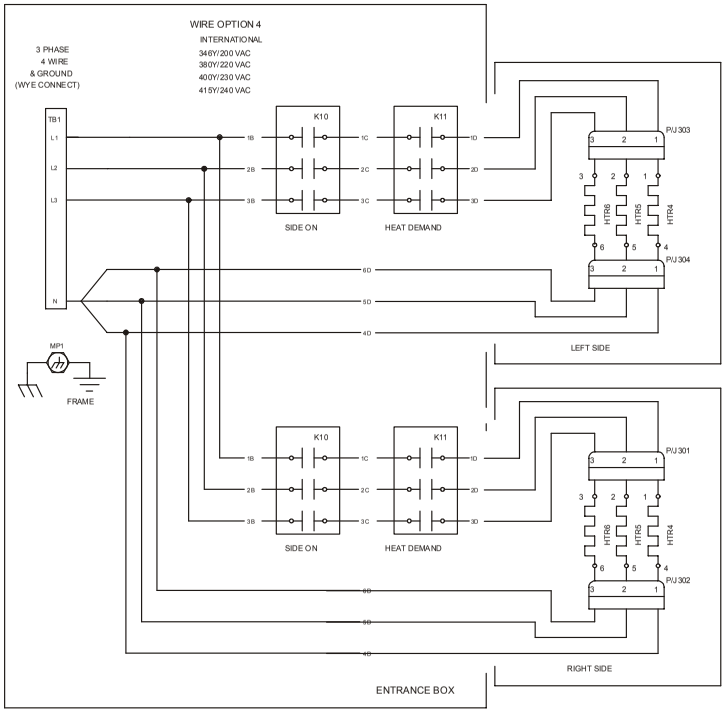
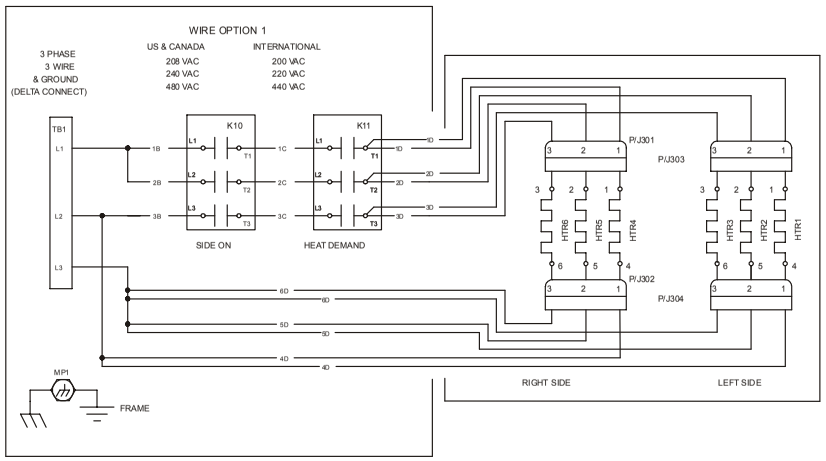


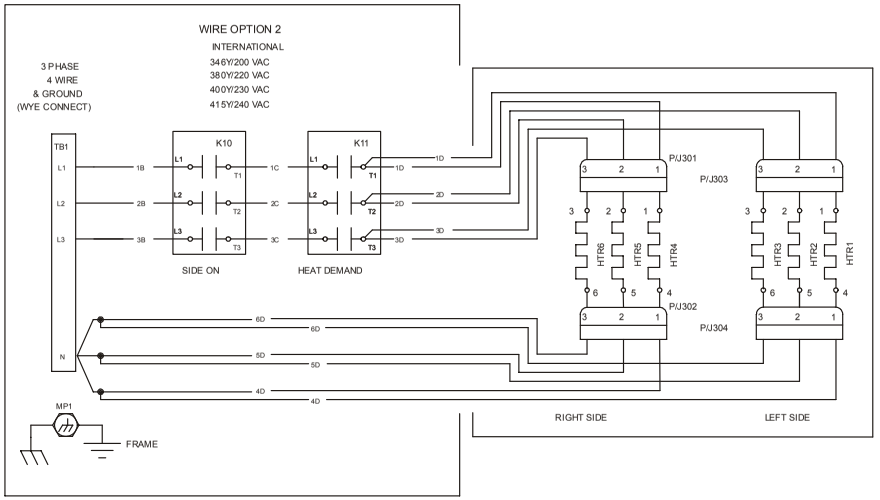
SPLIT VAT- DELTA LOAD CONNECTION



SPLIT VAT- WYE LOAD CONNECTION



SINGLE VAT- DELTA LOAD CONNECTION



SINGLE VAT- WYE LOAD CONNECTION

Schematic 700338 Sheet 10

Exploded Drawings and Parts Lists

Parts Listing

Fryer Electrical Components:

Part Number	Description
50006609	208V Element
50006610	220V Element
50006611	230V Element
50006612	240V Element
50006613	480V Element
A3341901	Tank/Element Gasket
60141201	Hi Limit Switch
A3342802	Upper Hi Limit Bracket
A3342902	Lower Hi Limit Bracket
PP10429	120/208/240V Transformer
PP10560	Side On Contactor
60139201	Heat Demand Contactor
P5045282	4 Post Terminal Block
P5047301	3 Post Terminal Block
B6700605-C	Temperature Probe
A3342502	Front Probe Bracket
A3342504	Rear Probe Bracket
60137301	24VDC Hood Relay
60126001	24VAC Hi Limit Relay (CE)
60137701	Expanded Menu Computer
B3631304	Front Panel Bezel
60132702	1.5A Time Delay Fuse
60127301	Relay Board
60132901	Relay Board Insulation
B5305001	DVI/Return Switch
PP10263	DVI/ReturnActuator

Filter Components:

Part Number	Description
60130806	115/220V Pump & Motor
60130807	240V Pump & Motor
60130810	208V Pump & Motor
60130803	115/220V Motor
60130804	240V Motor
60130809	208V Motor
PP10417	5 GPM Pump
60077901	10A Circuit Breaker (120V)
60078502	5A Circuit Breaker(208-240V)
60130301	120/24V Transformer
60130302	230-240/24V Transformer
60130303	208/24V Transformer
PP11058	24VAC SPST Relay (120V)
60104701	24VAC DPDT Relay (208-240V)
60132701	0.2A Time Delay Fuse
60133503	120V Heat Tape (Pump)
60133504	230/240V Heat Tape (Pump)
60133501	120V Heat Tape (Flush Hose)
60133502	230/240V Heat Tape (Flush Hose)
PP11104	1” Viton O-ring
60138701	Full/LH Non Locking Drain Valve
60138702	RH Non Locking Drain Valve
60138703	Full/LH Locking Drain Valve
60138704	RH Locking Drain Valve
60059302	Drain Line Gasket
60127702	Drain Line Clamp
B6665101	Drain Elbow
B6665201	Drain Tee Full
A7022407	Drain Line Tube Full/Full
A7022409	Drain Line Tube Split/Full
A7022411	Drain Line Tube Split/Split
A7022101	Drain Tee Ferrule
A7022201	Drain Tee Flange
B6664701	Drain Down Spout Full/Full
B6673301	Drain Down Spout Split
B5305001	DVI/Return Switch
PP10263	DVI/ReturnActuator
B6671201	Strainer Cap
B4004802	Full/RH Return Handle
B4004801	LH Twin Return Handle
60131801	Return Valve
A7008302	Paper Support
B6673801	Filter Pan

Miscellaneous

Part Number	Description
A4500601	Full Vat Tube Rack
B4512401	Split Vat Tube Rack
A3342102	Basket Hanger W/Capping
A3342104	Basket Hanger W/O Capping
60138101	Basket Hanger Stud
A4108302	Splash Back
B5007601	Dual Capping
B5007602	Triple Capping
B5007603	Quad Capping
B5007604	Quint Capping
P6071409	Nylon Cleaning Brush
A3301001	Cleanout Rod
B2304602	LH/RH Door
B3801901	RH Hinge Kit
B3801902	LH Hinge Kit
B3902101	9” Caster Set (4)
A1908202	Channel Strip
B2101503	Full/Twin Tank Cover

Table 1
Element and Tank Components

Item#	Part#	Part Description
1	A3342102	Basket Hanger w/Capping
	A3342104	Basket Hanger w/o Capping
2	A3341901	Element Gasket
3	50006609	Element 208V
	50006610	Element 220V
	50006611	Element 230V
	50006612	Element 240V
	50006613	Element 480V
4	60088003	Bolt, Element 1/4”x20x3/4” SS
5	60141201	Hi Limit Switch
6	A3342902	Lower Hi Limit Bracket
7	PP11366	Screw, 10-24 X 5/8 PHH SS TF
8	A3342802	Upper Hi Limit Bracket
9	PP10665	Screw, 10-24 X 3/8
10	B6700605-C	Temperature Probe
11	A3342504	Rear Probe Bracket
12	A4108302	Splash Back
13	A3342502	Front Probe Bracket
14	60138101	Basket Hanger Stud
	60118201	Bolt,Hex 1/4-20 X 3/4

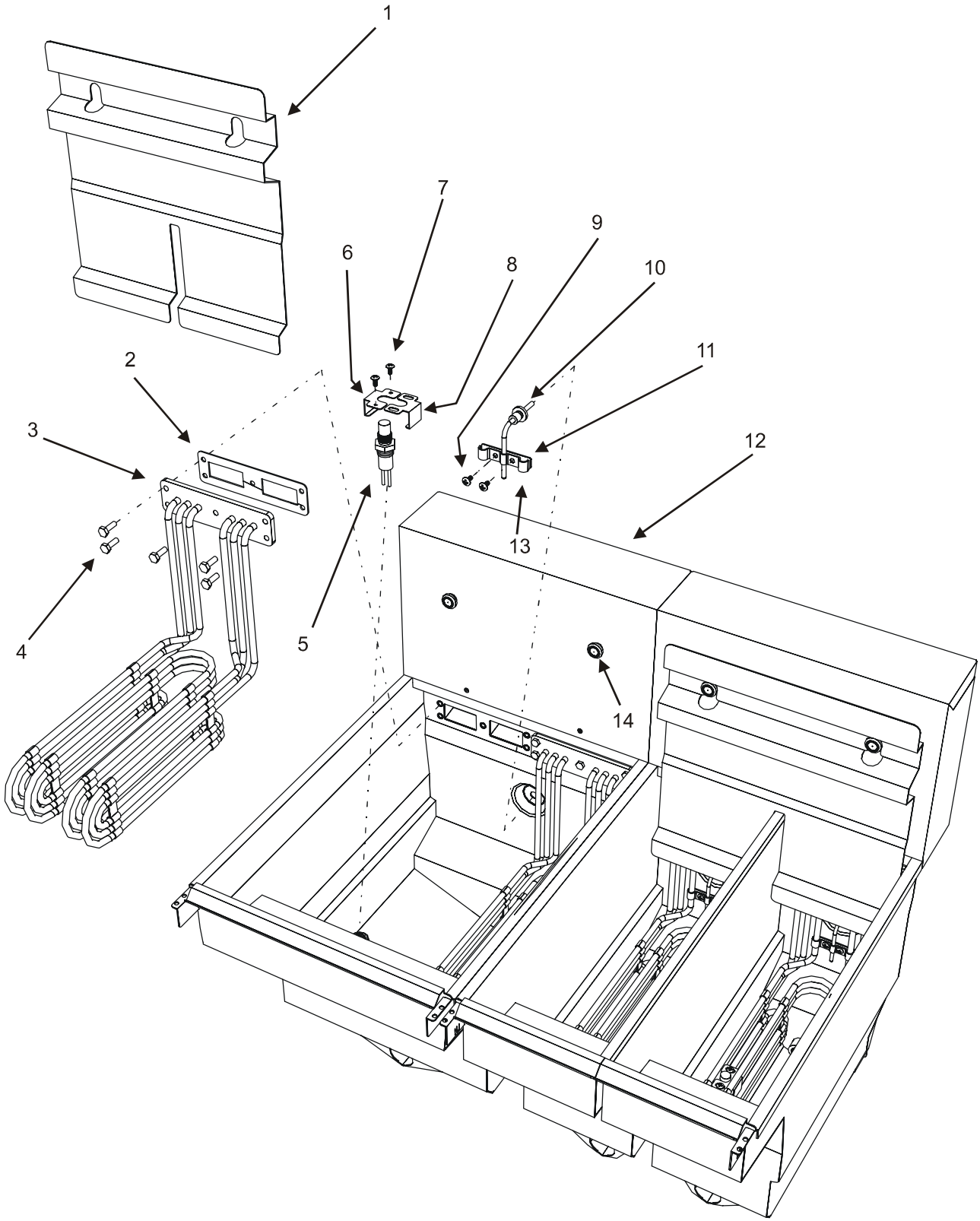


Figure 1

Table 2
Pump Box and Drain Manifold

Item#	Part#	Part Description
1	60130301	120/24V Transformer
	60130302	230-240/24VAC Transformer
	60130303	208VAC Transformer
2	60077901	10A Circuit Breaker (120V)
	60078502	5A Circuit Breaker (208V-240V)
3	PP11058	24VAC SPST Relay (120V)
	60104701	24VAC DPDT Relay (208-240V)
4	60130701	Conn, Pwr In & Out IEC320
5	60138701	Drain Valve, Full/Right Split, W/Non-locking Handle
	60138703	Drain Valve, Full/Right Split, W/Locking Handle
6	A7021701	Drain Valve Nipple
7	A7022201	Drain Flange
8	A7022101	Drain Ferrule
9	B6665101	Drain Elbow
10	60088002	Hex Bolt 3/8”x16x1-1/4”
11	P0082700	Lock Washer 3/8”
12	60127701	Drain Line Clamp
13	60059302	Drain Line Gasket
14	B6664701	Drain Down Spout Full/Full
	B6673301	Drain Down Spout Split
15	60138702	Drain Valve, Left Split, W/Non-locking Handle
	60138704	Drain Valve, Left Split, W/Locking Handle
16	Contact Factory	Drain Line Tube
17	PP10263	DVI Actuator
18	B5305001	DVI Switch Assembly
19	PP10266	Screw, 4-40 X .250 RDH ZN

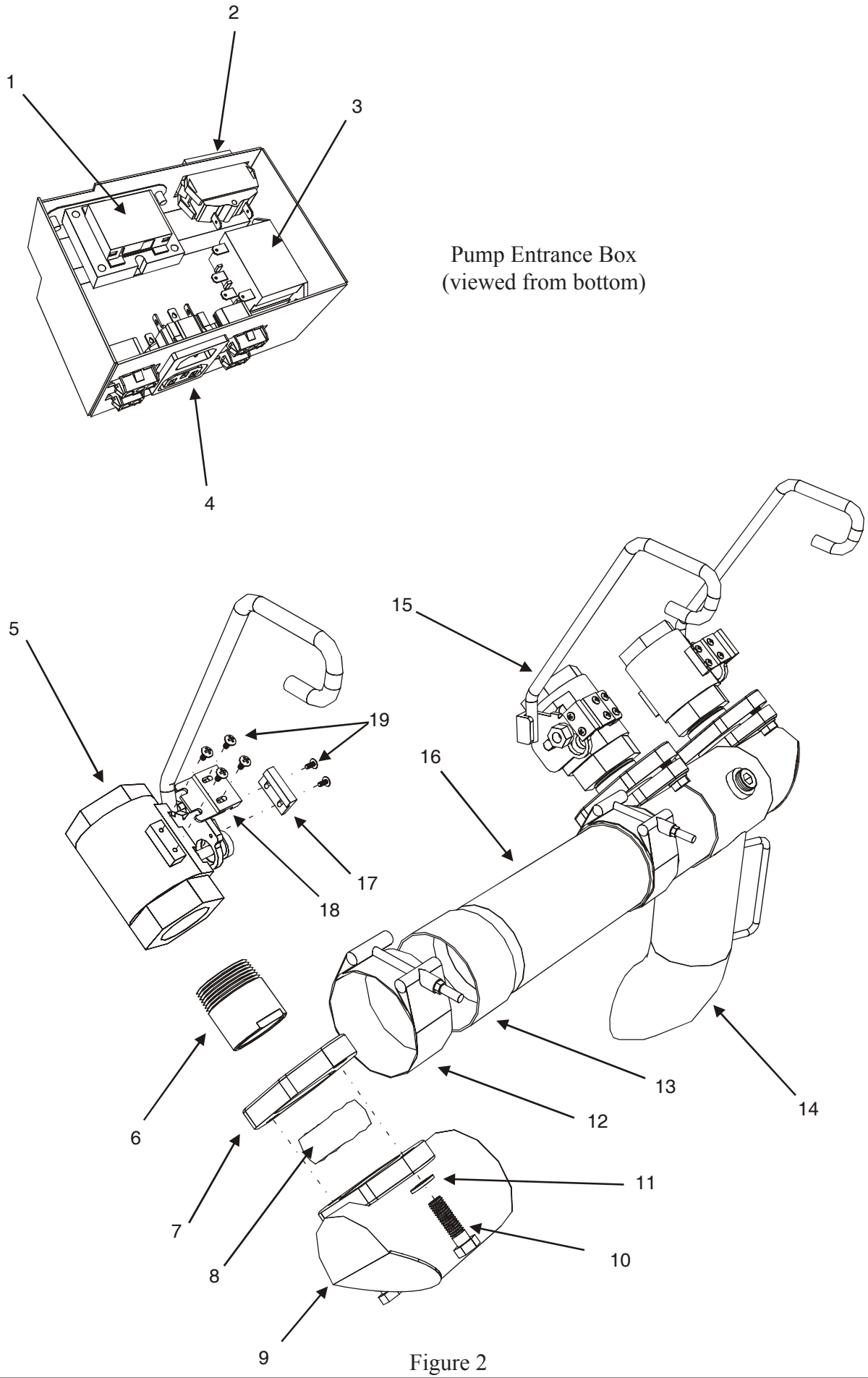

1
2
3
4
Pump Entrance Box
(viewed from bottom)
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

Figure 2

Table 3
Main Entrance Box

Item#	Part#	Part Description
1	60132702	Relay Board Fuse, 1.5A Time Delay
2	60127301	Relay Board
	60132901	Relay Board Insulation
3	P5047301	3 Post Terminal Block
4	60139201	Heat Demand Contactor
5	PP10560	Side On Contactor
6	PP10429	Transformer 120/208/240VAC
7	60140701	Rcpt,10A-250V IE320F Screw In
8	P5045282	4 Post Terminal Block
9	B5305001	DVI Return Switch
	PP10263	DVI Return Actuator (not shown)

Additional Parts Not Shown

60126001	24VDC Hood Relay
60126001	24VAC Hi Limit Relay (Export and CE Only)
60137701	Expanded Menu Computer
B3631304	Front Panel Bezel

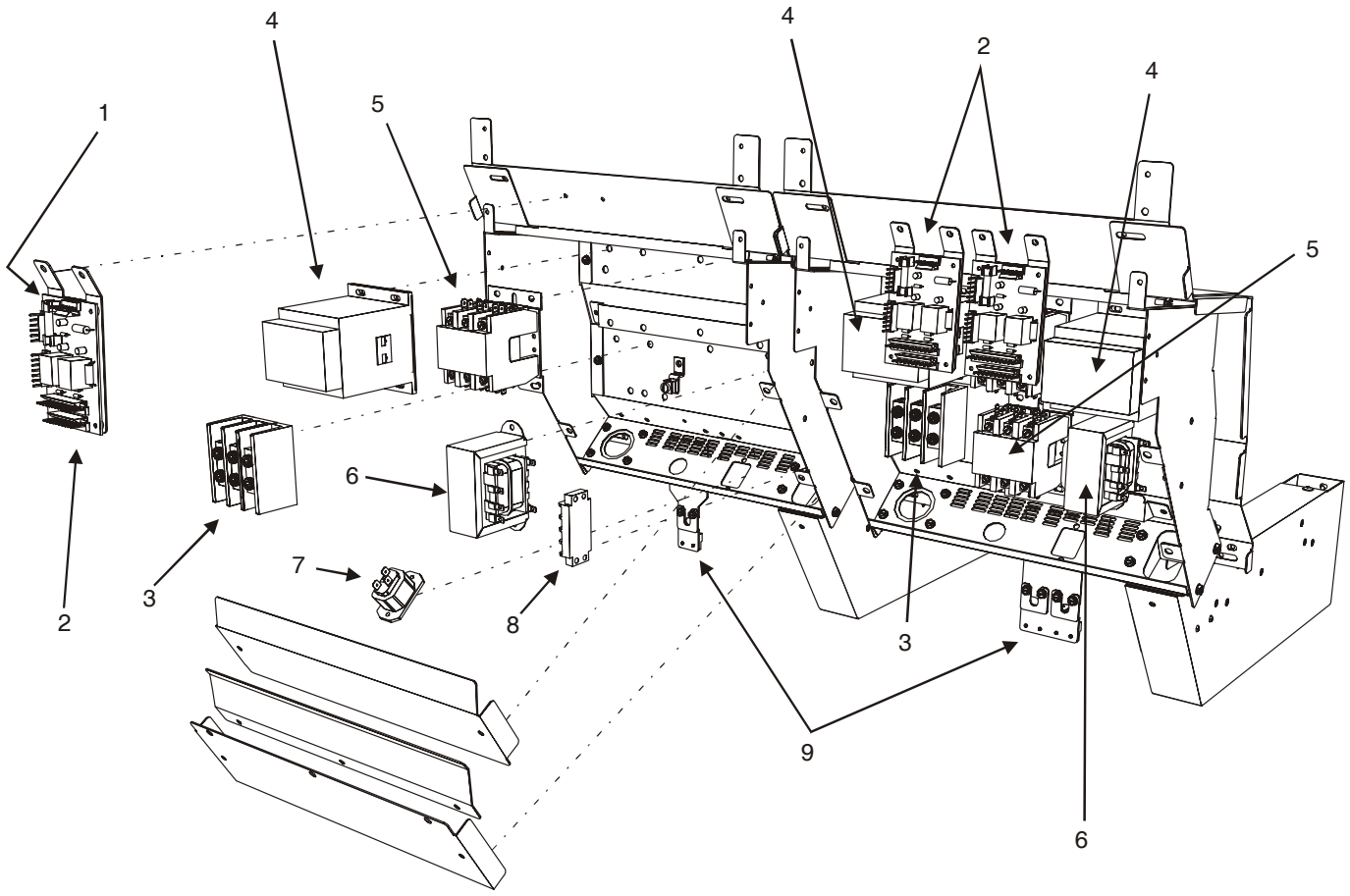


Figure 3

Table 4
Pump Assembly and Filter Pan

Item#	Part#	Part Description
1	B4004802	Full/Right Split Return Handle
	B4004801	Left Split Return Handle
2	P0190200	Cotter Pin 1/16”x3/4”
3	60131901	Washer, Spring 5/8” with 5/16” Hole
4	P0080750	Washer, Flat 5/16”
5	PP10266	4-40 x 1/4” Screw
6	B5305001	DVI Return Switch
7	PP10266	4-40 x 1/4” Screw
8	PP10263	DVI Return Actuator
9	PP10266	4-40 x 1/4” Screw
10	60130806	115/220VAC Pump & Motor Assembly
	60130807	240VAC Pump & Motor Assembly
	60130810	208VAC Pump & Motor Assembly
	60130804	115/220V Motor Only
	60130804	240VAC Motor Only
	60130809	208VAC Motor Only
	PP10417	5 GPM Pump Only
11	P6071516	3/4” x 4” NPT Nipple
12	PP11104	1” x 1.18” viton O-ring (3 required)
13	A7027602	Pickup Tube Receiving Block
14	P7036603	3/4” NPT Coupling
15	60132201	Hose, Teflon Swivel FxMPT
16	60128008	Tbg, Flex Return Line 0.5” x 15.5”
	60128009	Tbg, Flex Return Line 0.5” x 19”
	60128010	Tbg, Flex Return Line 0.5” x 22”
	60128011	Tbg, Flex Return Line 0.5” x 10”
17	60131801	Return Valve
18	60130001	End Cap
19	60130101	Tank Return Fitting
20	B6671201	Pickup Tube Strainer
21	A7008302	Paper Support
22	B6673501	Paper Hold Down
23	60131401	Rigid Caster
24	B6673401	Filter Pan Only (no casters)

Additional Parts Not Shown

PP11273	Filter Paper
60133503	120V Heat Tape (pump)
60133504	230/240V Heat Tape (pump)
60133501	120V Heat Tape (flush hose)
60133502	230/240V Heat Tape (flush hose)

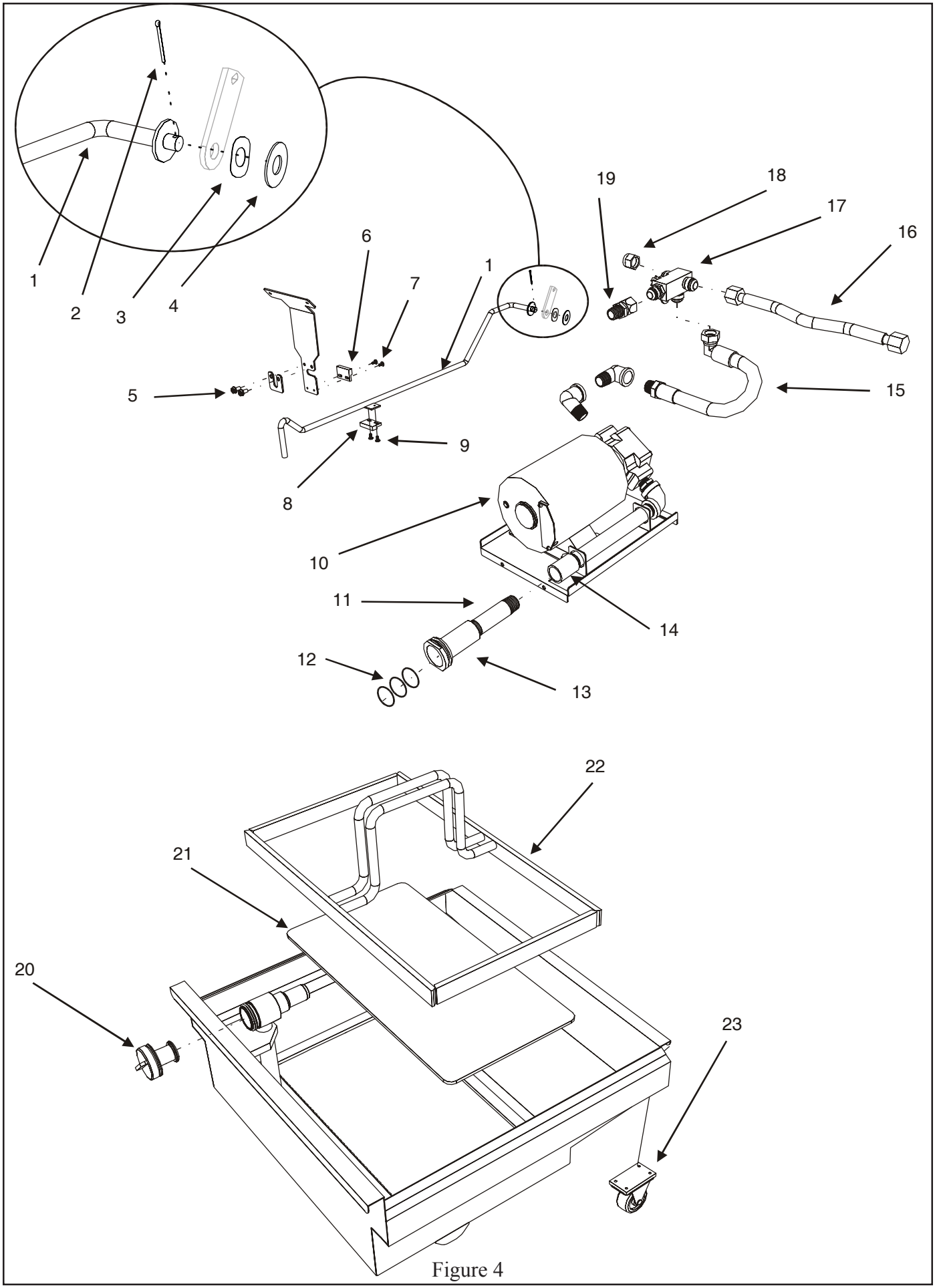


Figure 4

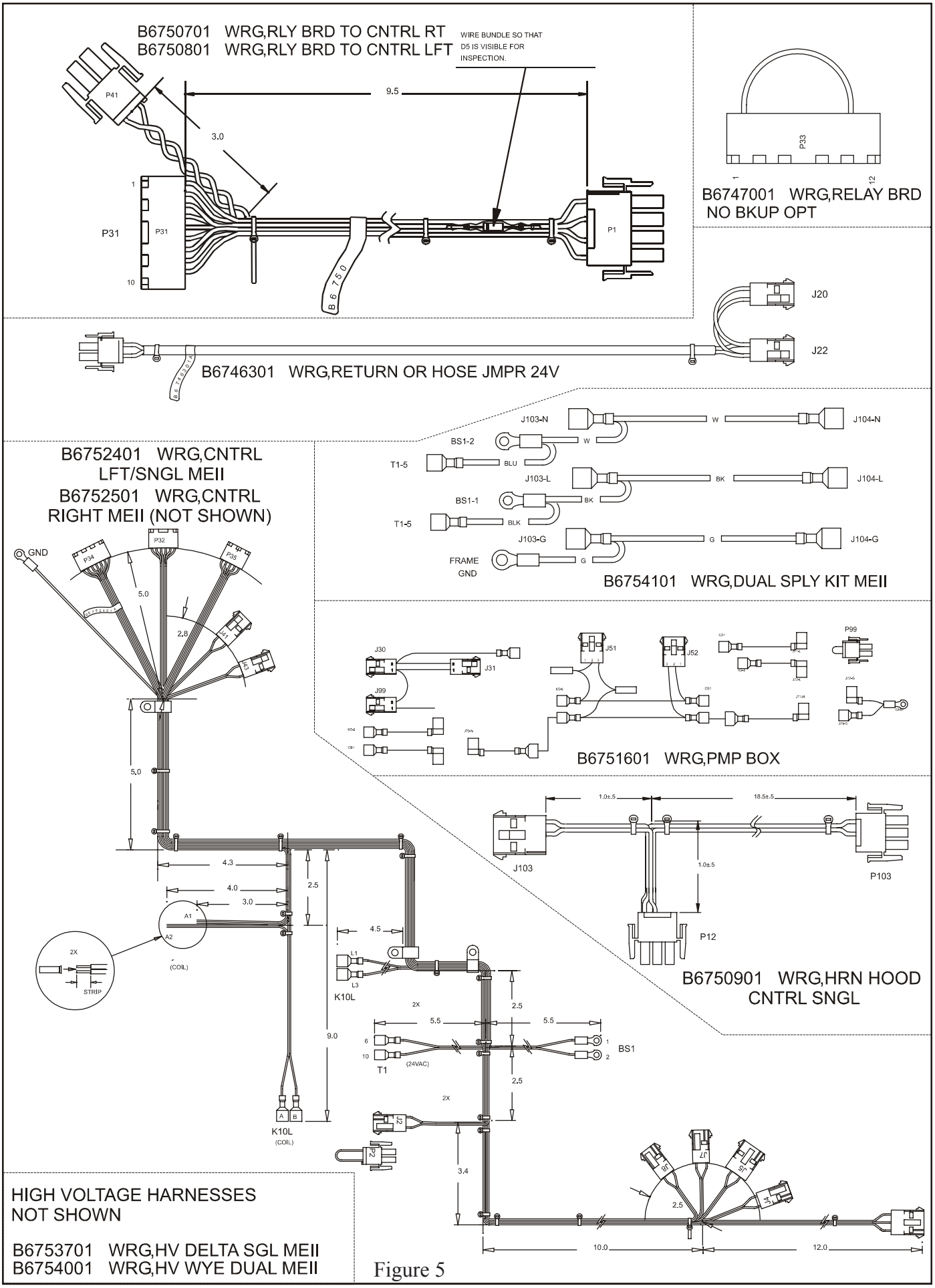
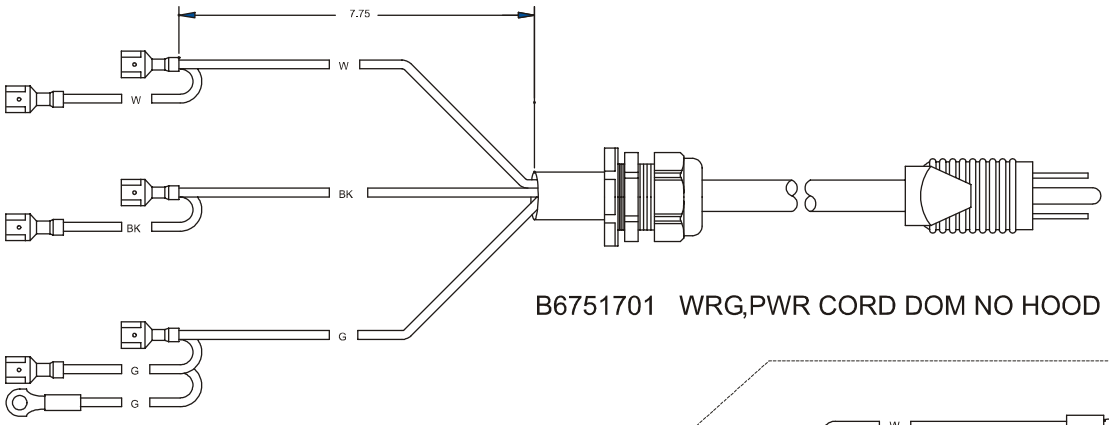
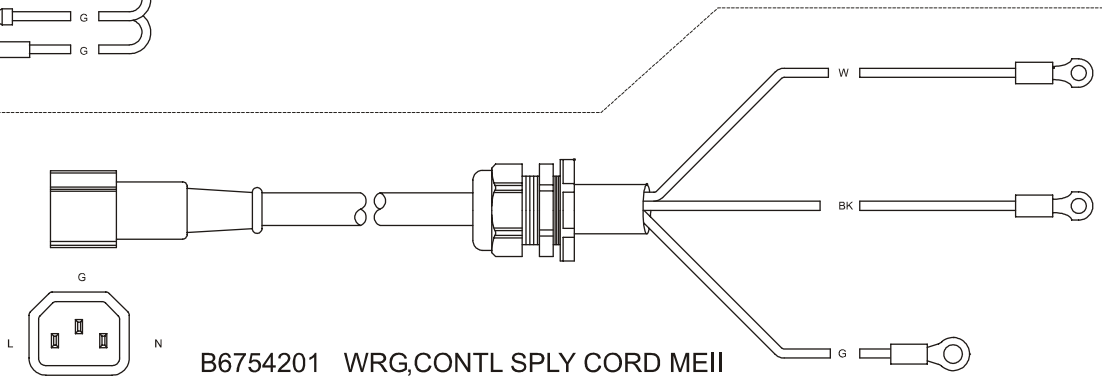

B6750701 WRG,RLY BRD TO CNTRL RT
B6750801 WRG,RLY BRD TO CNTRL LFT
WIRE BUNDLE SO THAT D5 IS VISIBLE FOR INSPECTION.
P41
P31
P1
9.5
3.0
B6747001 WRG,RELAY BRD NO BKUP OPT
P33
J20
J22
B6746301 WRG,RETURN OR HOSE JMPR 24V
B6752401 WRG,CNTRL LFT/SNGL MEII
B6752501 WRG,CNTRL RIGHT MEII (NOT SHOWN)
J103-N
J104-N
BS1-2
T1-5
J103-L
J104-L
BS1-1
J103-G
J104-G
FRAME GND
B6754101 WRG,DUAL SPLY KIT MEII
GND
P32
P34
P35
5.0
2.8
B6751601 WRG,PMP BOX
J30
J31
J99
J51
J52
P99
J103
P103
P12
B6750901 WRG,HRN HOOD CNTRL SNGL
4.3
4.0
3.0
2.5
4.5
A1
A2
(COIL)
2X
STRIP
K10L
L1
L3
9.0
5.5
BS1
T1
(24VAC)
K10L
(COIL)
3.4
10.0
12.0
HIGH VOLTAGE HARNESSES NOT SHOWN
B6753701 WRG,HV DELTA SGL MEII
B6754001 WRG,HV WYE DUAL MEII

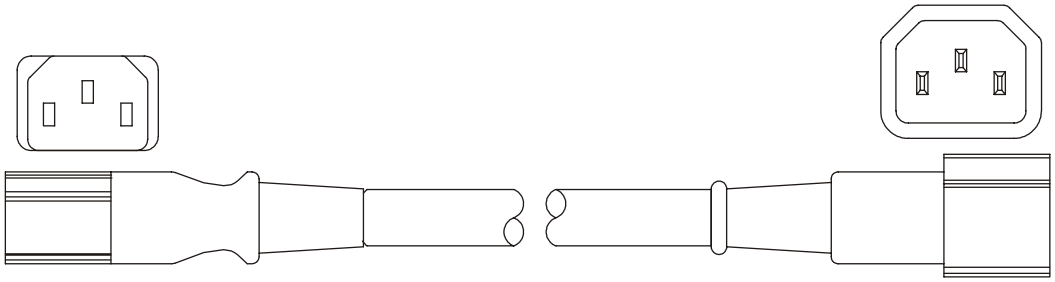
Figure 5



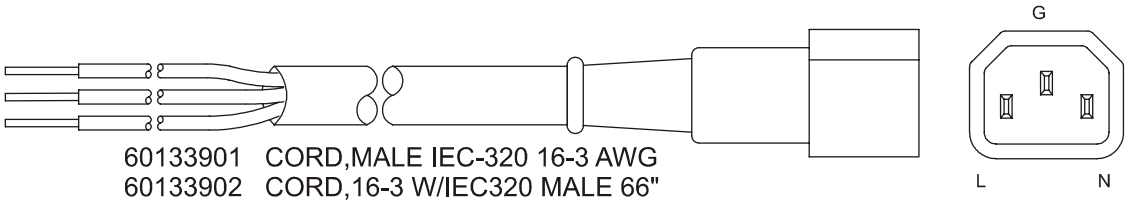
B6751701 WRG,PWR CORD DOM NO HOOD



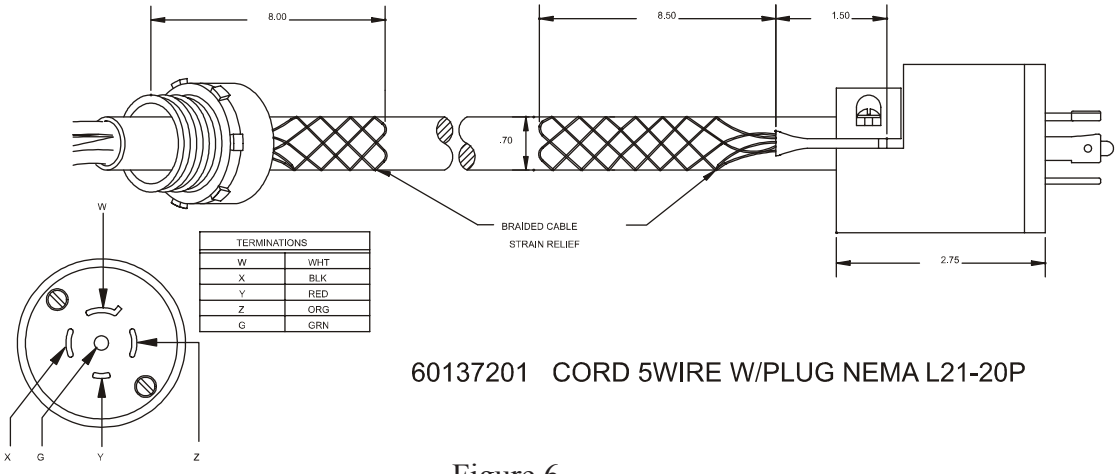
B6754201 WRG,CONTL SPLY CORD MEII



60128403 CORD,M-F JUMPER IEC-320X34"



60133901 CORD,MALE IEC-320 16-3 AWG
60133902 CORD,16-3 W/IEC320 MALE 66"



TERMINATIONS	
W	WHT
X	BLK
Y	RED
Z	ORG
G	GRN

60137201 CORD 5WIRE W/PLUG NEMA L21-20P

Figure 6

In the event of problems with or questions about your order, please contact the Pitco Frialator factory, from 8:00 a.m. - 5:00 p.m., Eastern Standard Time, Monday through Friday, toll-free at:

(800) 258-3708 US and Canada only or
(603) 225-6680

In the event of problems with or questions about your order, please contact the Pitco Frialator Authorized Service and Parts representative (ASAP) covering your area, through Pitco at:

(800) 258-3708 US only, 24 hours

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